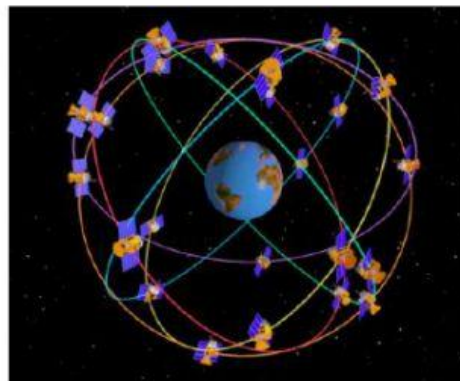


Where on earth are we?

1/ Match the positioning systems to their countries

GPS	China
GLONASS	Europe
Galileo	India
IRNSS	Russia
BeiDou	USA



2/ How do satellite positioning systems work? Drag the words to their places to complete the text.

A **satellite navigation** or **satnav** system is a system that uses _____ to provide autonomous geo-spatial positioning. It allows small _____ receivers to determine their location (longitude, _____, and altitude/elevation) to high precision (within a few centimeters to metres) using time signals transmitted by _____ from satellites. It works by _____ the time needed for the signals to reach the receivers. The system can be used for providing position, navigation or for _____ the position of something fitted with a receiver. The signals also allow the electronic receiver to calculate the current local time to high _____. Satnav systems operate independently of telephonic or _____ reception.

calculating

electronic

internet

latitude

precision

radio

satellites

tracking

3/ Watch the video. Decide, whether the sentences are true (T) or false (F).

1. Satellite navigation is not used by ships.
2. GPS stands for Geographical Positioning System.
3. Galileo started its services in 2016.
4. It consists of 32 satellites.
5. Galileo can cooperate with other systems.
6. All satellite systems are operated by military services.
7. Galileo can be used for commercial applications.

4/ Guess the correct answers. Then watch the video (from 0:35 to 3:20) and check.

1. The receiver on Earth needs to receive signals from ____ satellites at once.
2. Each Galileo spacecraft has ____ atomic clocks.
3. The passive hydrogen maser works with the accuracy of 1 second in ____ million years.
4. The accuracy of rubidium clock is ____ seconds in a million years.
5. The error of 1 second in timing would equal to positioning mistake of ____ thousand kilometres.
6. The satellite travel from the temperatures of + hundreds degrees Celsius to - ____ degrees.
7. Galileo system has ____ control centres around Europe.
(note: The headquarters of Galileo are in Prague.)

5/ What services does Galileo offer? Listen and fill in the words.



Galileo tracks anything that moves by road, rail, air and at _____ and offers new services for all types of needs.

The **open service** provides _____ accuracy and robustness in complex environments like cities.

The **commercial service** delivers authentication and high accuracy _____ applications.

The **search-and-rescue channel** _____ people in distress and leads first responders.

The public regulated service **encrypted channel** _____ greater and safer availability.