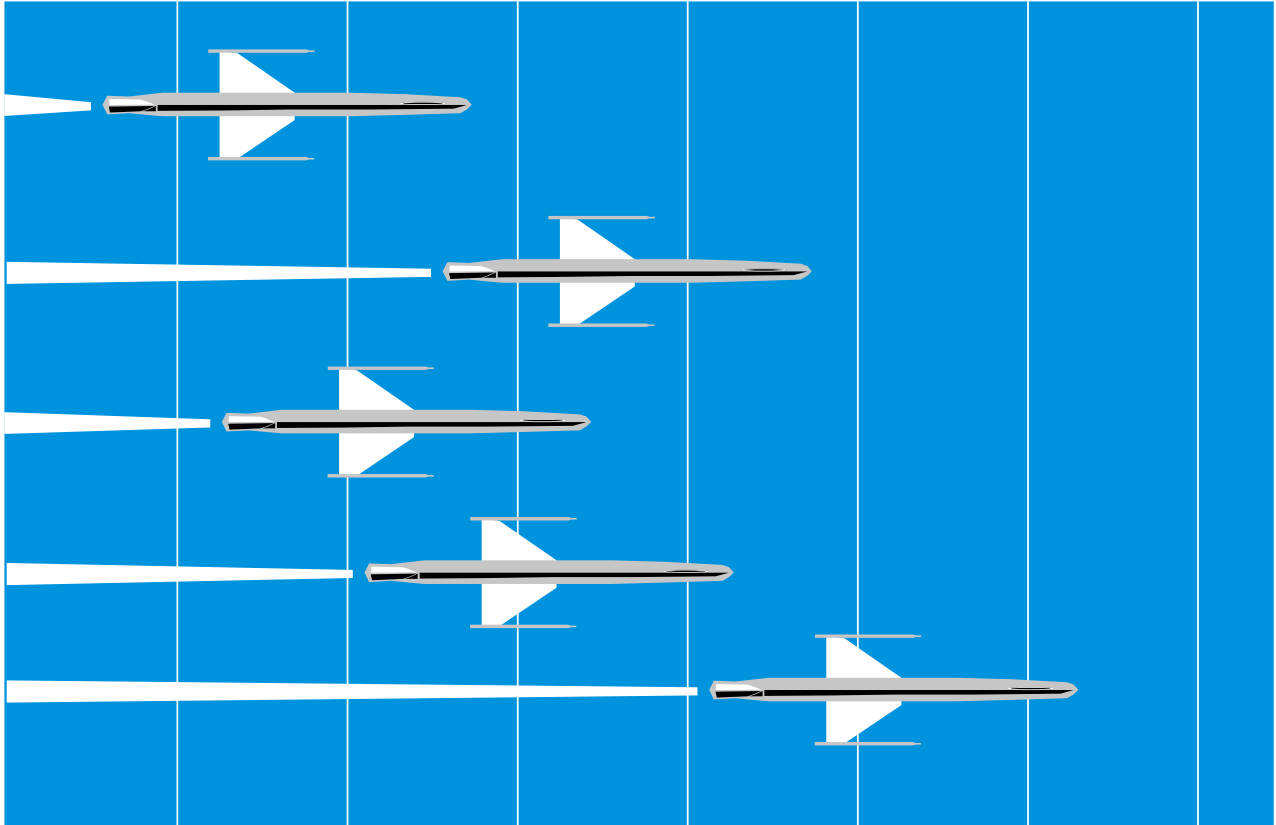


FAST, FASTER, FASTEST



Currently, air transport offers the fastest form of travel. Craft designed for outer space eg rockets, shuttles etc need to reach speeds of 28 000 kilometres an hour to stay in orbit but commercial airplanes generally travel between 600 and 900 kilometres per hour while fighter planes can travel at around 1 200 kilometres per hour.

You will often see a plane's speed expressed as knots (or nautical miles) per hour. To convert knots to kilometres, multiply by 1.85. If you see speed expressed as miles per hour, multiply by 1.61 to convert the speed to kilometres per hour.

The speed a plane can travel is dependent on the type of plane, the altitude it is at, the weather conditions around it, its cargo weight and if it is capable of (or allowed to) break the speed of sound. (Supersonic aircraft will generate sonic booms that are generally illegal to make over populated land.)

Air speed (ie flying at altitude) is not the same as ground speed. This is because of the influence of winds. Flying with a tailwind increases a plane's velocity. Because of the world's wind patterns, flying to the west will take longer than flying the same distance to the east.

At lift-off, planes may be travelling up to 290 kilometres per hour ground speed. They generally take off into the wind which forces the climb gradient up and means less runway is required. They also land into the wind.

Find out the meaning of:

Gradient _____

Tailwind _____

Velocity _____

Altitude _____

Supersonic _____

Sonic boom _____

Convert:

500 knots to kilometres _____ 300 miles per hour to kilometres per hour _____

What is the speed of sound? _____

Use arrows to show the world's main wind patterns on a world globe.