

Acronyms

ATV –	Automated Transfer Vehicle
ESA –	European Space Agency
ERA –	European Robotic Arm
EVA –	Extra Vehicular Activity (see: Spacewalks, glossary)
GMT –	Greenwich Mean Time (the local time at the 0 meridian passing through Greenwich, England)
ISS –	International Space Station
MEDET –	Materials Exposure and Degradation Experiment
MELFI –	Minus Eighty degrees Laboratory Freezer for the ISS
NASA –	National Aeronautics and Space Administration
QCM –	Quartz Crystal Microbalances
STORM –	Southampton Transient Oxygen and Radiation Monitor

Glossary

Acceleration –	The rate of change of velocity with respect to time (measured in m/s^2).
Airbus, A300 –	Aircraft used for ESA's parabolic flights.
Alloy –	A homogenous mixture of two or more metals.
Altitude –	Used in its astronomical sense, it means the angle from the horizon. 0° altitude is exactly on your local horizon and 90° degrees at the zenith or up. If the object is below the horizon the altitude is negative.
Ariane 5 –	ESA launcher.
Asteroid –	Any of numerous small celestial bodies composed of rock and metal that revolve around the Sun, with orbits lying mainly between Mars and Jupiter and diameters between a few and several hundred kilometers.
Astrobiologist –	Scientist studying the branch of biology that deals with the search for extraterrestrial life and the effects of extraterrestrial surroundings on living organisms.
Atmosphere –	The gaseous mass surrounding a celestial body, for example the air surrounding the Earth, and retained by the celestial body's (e.g. the Earth) gravitational field.
Atom –	A unit of matter, the smallest unit of an element, having all the characteristics of that element and consisting of a dense, central, positively charged nucleus surrounded by a system of electrons.
Azimuth –	The horizontal angular distance from a reference direction, usually the northern point of the horizon, to the point where a vertical circle through a celestial body intersects the horizon. The angle is expressed in degrees or points of the compass and increases from the north in a clockwise direction, therefore 0° corresponds to North, 90° is East, 180° is South and 270° is West.
Biolab –	A facility for biology experiments installed in a rack.
Calorimeter –	An apparatus for measuring the heat generated by a chemical reaction, change of state, or formation of a solution.
Canadarm2 –	A 17 metres long robotic "arm" attached to the ISS (main Canadian contribution to the ISS).

- Capacitor** – An electric circuit element used to store charge temporarily, consisting in general of two metallic plates separated and insulated from each other by a dielectric.
- Coalescence** – To come together so as to form one whole; unite. Referred to foams, the stage in the production of foam where the bubbles begin to merge together to form larger bubbles.
- Columbus** – The European laboratory; one of the modules of the ISS.
- Convection current** – Motion caused by an external force such as gravity. Example: Convection current is formed when warm, lighter air rises and cold, heavier air sinks.
- Corrosion** – A state of deterioration in metals caused by oxidation or chemical action.
- Cupola** – A dome-like structure on the ISS; a panoramic window onto space and a control room for astronauts operating the Station's equipment.
- Debris** – The remains of something that has been destroyed or broken up.
- Decelerate** – To decrease in velocity. When something slows down, it decelerates.
- Destiny** – The American laboratory; one of the modules of the ISS.
- Equator** – The imaginary great circle around the middle of the Earth's surface (it is equidistant from the Poles and perpendicular to the Earth's axis of rotation). It divides the Earth into the Northern Hemisphere and the Southern Hemisphere.
- Escape Velocity** – The minimum velocity that a body must attain to escape a gravitational field.
- European Robotic Arm** – A 11.3 m long robotic "arm" attached to the ISS (one of the main European contributions to the ISS).
- Extra Vehicular Activity (EVA)** – see: spacewalks
- Frequency** – The number of occurrences within a given time period.
- Friction** – A force that resists the relative motion or tendency to such motion of two bodies in contact. Example: there is friction when two objects are in contact with each other – this causes a resistance of their motion and increasing temperatures.
- Galaxy** – A large-scale aggregate of stars, gas, and dust (containing an average of 100 billion solar masses and ranging in diameter from 1 500 to 300 000 light-years).
- Glovebox** – A sealed box with gloves attached – it allows experiments to be carried out in an absolute clean (sterile) environment.
- GMT** – Greenwich Mean Time. The local time at the 0 meridian passing through Greenwich, England.
- Gravity** – The natural force of attraction exerted by a celestial body, such as the Earth, upon objects at or near its surface, tending to draw them towards the centre of the body. The natural force of attraction between any two bodies, which is directly proportional to the product of their masses and inversely proportional to the square of the distance between them.
- Horizon** – The line at which the sky and Earth appear to meet.
- Ion** – An atom or a group of atoms that has acquired an electric charge by gaining or losing one or more electrons.
- Kibo** – The Japanese laboratory (Kibo means "hope" in Japanese); one of the modules of the ISS.

Latitude –	Distance on the Earth's surface, measured north or south from the Equator, to the parallel passing through a position.
Launchers –	A device capable of launching a rocket.
Liquid drainage –	The stage in the production of foam where the bubbles collapse back to a liquid state.
Longitude –	Distance on the Earth's surface, measured east or west from the meridian at Greenwich, England, to the meridian passing through a position.
Magnitude –	The degree of brightness of a celestial body designated on a numerical scale, on which the brightest star has magnitude -1.4 and the faintest visible star has magnitude 6.
Mass –	Mass is the amount (quantity) of matter an object contains. The mass of an object is the same wherever it is in the universe. Mass is measured in kg.
Meteoroid –	A solid body, moving in space, that is smaller than an asteroid and at least as large as a speck of dust.
Microgravity –	An environment in which there is very little net gravitational force, as of a free-falling object, an orbit, or interstellar space.
μG – Microgravity; μ –	The symbol for "micro", originally from the Greek word "micros", often used in the sense "small", is "one part in a million" or (10 ⁻⁶).
Micrometeoroid – Micron –	A very small, often dust-sized meteoroid. A measure of length; the thousandth part of one millimetre; the millionth part of a meter.
Mir –	Space station launched by the Soviet Union in 1986. Mir means "peace" in Russian.
Molecule –	The smallest particle of a substance that retains the chemical and physical properties of the substance and is composed of two or more atoms; a group of like or different atoms held together by chemical forces.
Nanometer –	One billionth (10 ⁻⁹) of a meter.
Newton, Sir Isaac –	British scientist (mathematician, physicist and astronomer), 1642 – 1727, defined and discovered inter alia the "Three laws of motion" and the force of gravitation.
Node –	"Corridor link" that will allow astronauts to pass from one Station module ("room") into another and that will allow modules to link up with each other. Some of the nodes also have docking ports for visiting spacecraft.
Orbit –	The path of an object (e.g. a celestial body or an artificial satellite) as it revolves around another body. One orbit is one complete revolution of such an object.
Parabolic flights –	Flights, flown in a pattern of parabolas, used to conduct scientific and technological investigations for short periods in near-weightless conditions (for more information, please see unit 4.1).
pH –	A measure of the acidity or alkalinity of a solution, numerically equal to 7 for neutral solutions, increasing with increasing alkalinity and decreasing with increasing acidity. The pH scale commonly in use ranges from 0 to 14.
Planet –	A nonluminous celestial body larger than an asteroid or comet, illuminated by light from a star, such as the Sun, around

- which it revolves. In the Solar System there are nine known planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, and Pluto.
- Pressurised volume** – In space, pressurised volume means an air-tight container that has the same atmospheric pressure as we experience on Earth (in the range 734 mm Hg to 770 mm Hg) so that astronauts can live and breathe normally on board the Station.
- Resistance** – A force that tends to oppose or retard motion.
- Robot** – A machine or device that operates automatically or by remote control, the word is of Czech origin, “robota”, and means “compulsory labour”.
- Salyut-1** – The first space station in orbit, launched by the Soviet Union in 1971. Salyut means “salute” in Russian.
- Satellite** – A celestial body (a moon) or a man-made object that orbits around a planet or a star.
- Skylab** – The first American space station in orbit, launched in 1973.
- Spacelab** – A laboratory, developed by Europe, launched by the United States of America, placed in the cargo bay of the Space Shuttle.
- Space Shuttle** – American reusable launcher.
- Spacesuits** – Suits designed to protect astronauts against the dangers of outer space when performing spacewalks. The suits are among other things air-tight and cover the whole body in several layers.
- Spacewalks** – When astronauts move in space, for instance when connections have to be done on the outside of the ISS. Also called “Extra Vehicular Activity” (EVA). When performing spacewalks, the astronauts have to protect themselves against the harsh environment of space.
- Surface tension** – A property of liquids, as a result of which the surface tends to contract and has properties resembling those of a stretched elastic membrane. Example: surface tension makes water behave as if it had a skin, and explains why insects can walk on the water and why the water forms spheres in weightless conditions.
- Vacuum** – A space empty of matter. (Also referred to as space in which the pressure is significantly lower than the Earth atmospheric pressure).
- Weight** – The force with which a body is attracted to Earth or another celestial body; it is equal to the product of the object’s mass and the acceleration of gravity. The more mass an object has, the greater its weight.
- Weightlessness** – Popular term for the near absence of gravity, e.g. experienced in spacecrafts (see microgravity).
- X-Rays** – A relatively high-energy photon having a wavelength in the approximate range from 0.01 to 10 nanometers.
- Zarya** – First, Russian, module of the ISS (Zarya means “sunrise” in Russian).
- Zenith** – The point vertically above an observer, 90° from the horizon.
- Zero-gravity** – Arises when an object is in continuous free fall and there are no external forces acting on it (see also Microgravity).
- Zvezda** – The Russian laboratory (Zvezda means “star” in Russian); one of the modules of the ISS.