

LAYERS OF THE ATMOSPHERE CHART

Name of layer	Altitude range	Temperature range	Description of gases	Percentage of the atmosphere's total mass	Events/Objects/Phenomena
Exosphere (exo = outside)	500-10,000 km	Temperature decreases with altitude, dropping from ~1500 down to -270°C	Ionized gases and molecules, some of them escaping from Earth's gravity	Very much less than 1%	Polar-orbiting satellites; Earth's gravitational influence gradually diminishes as this layer transitions to "outer space."
Thermosphere (thermo = heat)	80-500 km	Temperature increases with altitude from -90 up to ~1500°C	Light molecules such as hydrogen, interacting with high-energy solar radiation	Much less than 1%	Space Shuttles (~250 km), International Space Station (~330 km); auroras; ELVES (expanding discs of light associated with some thunderstorms)
Mesosphere (meso = middle)	40-80 km	Temperature decreases with altitude from 0 to -90°C	Mainly nitrogen and oxygen, with fewer and fewer particles as altitude increases	Under 1%	Majority of meteors burn up in this layer; noctilucent (night-shining) clouds of water ice; sprites (jellyfish-shaped flashes of red light associated with some thunderstorms)
Stratosphere (strato = layer)	10-40 km	Temperature increases with altitude from -60 to 0°C	Nitrogen, oxygen, and other gases, including the ozone "layer" (Greatest abundance of ozone is at about 20 km)	19%	Weather balloons, high-altitude research aircraft, some commercial jet flights; blue jets (cones of blue light that project from the top of some thunder clouds), cooling over time as less heat escapes from troposphere
Troposphere (tropo = changing)	0-10 km	Temperature decreases with altitude from 20 to -60°C	Nitrogen, oxygen, argon, carbon dioxide, water vapor, and others	80%	Gases moving between land, ocean, life, and air; airborne particles of dust or soot; weather systems; planes; layer is warming over time due to increases in heat-trapping gases