Atmosphere and Its Layers

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ATMOSPHERE AND ITS LAYERS

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ATMOSPHERE

- One of the main components of Earth's interdependent physical system
- It is composed of about 78% nitrogen, 21% oxygen, and 1% other gases

LAYERS

- Troposphere:
  - Extends from Earth's surface upto 12 kilometers
  - The lowest part of the atmosphere- the part we live in
  - Temperature in the troposphere decreases with height
    - The top of the troposphere is called tropopause
  - Densest atmospheric layer
  - Contains about 75% of all of the air in the atmosphere, and 99% of water vapour (which forms clouds and rain)
- Stratosphere:
  - Located between 12 and 50 kilometers above Earth's surface
  - Contains much of the ozone in the atmosphere
    - Ozone molecules in this layer absorb ultraviolet (UV) radiation from the Sun, resulting in an increase in temperature
  - It is nearly cloud- and weather-free
  - It's the highest part of the atmosphere that jet planes can reach
- Mesosphere:
  - Located between about 50 and 80 kilometers above Earth's surface
  - The top of this layer is the coldest place found within the Earth system
  - It forms noctilucent clouds, the highest clouds in Earth's atmosphere
  - Most meteors burn up in this atmospheric layer
  - Sounding rockets and rocket-powered aircraft can reach the mesosphere
- Thermosphere:
  - Located between about 80 and 700 kilometers above Earth's surface
  - Its lowest part contains the ionosphere
  - The temperature of the thermosphere varies between night and day and between the seasons
  - The aurora borealis (northern) and aurora australis (southern) are sometimes seen here
- Exosphere:
  - Located between 700 and 10,000 kilometers above Earth's surface.
  - The highest layer of Earth's atmosphere.
  - There's no weather at all in this layer.
  - Most Earth satellites orbit in this layer.
  - At the bottom of the exosphere is a transition layer called the thermopause.