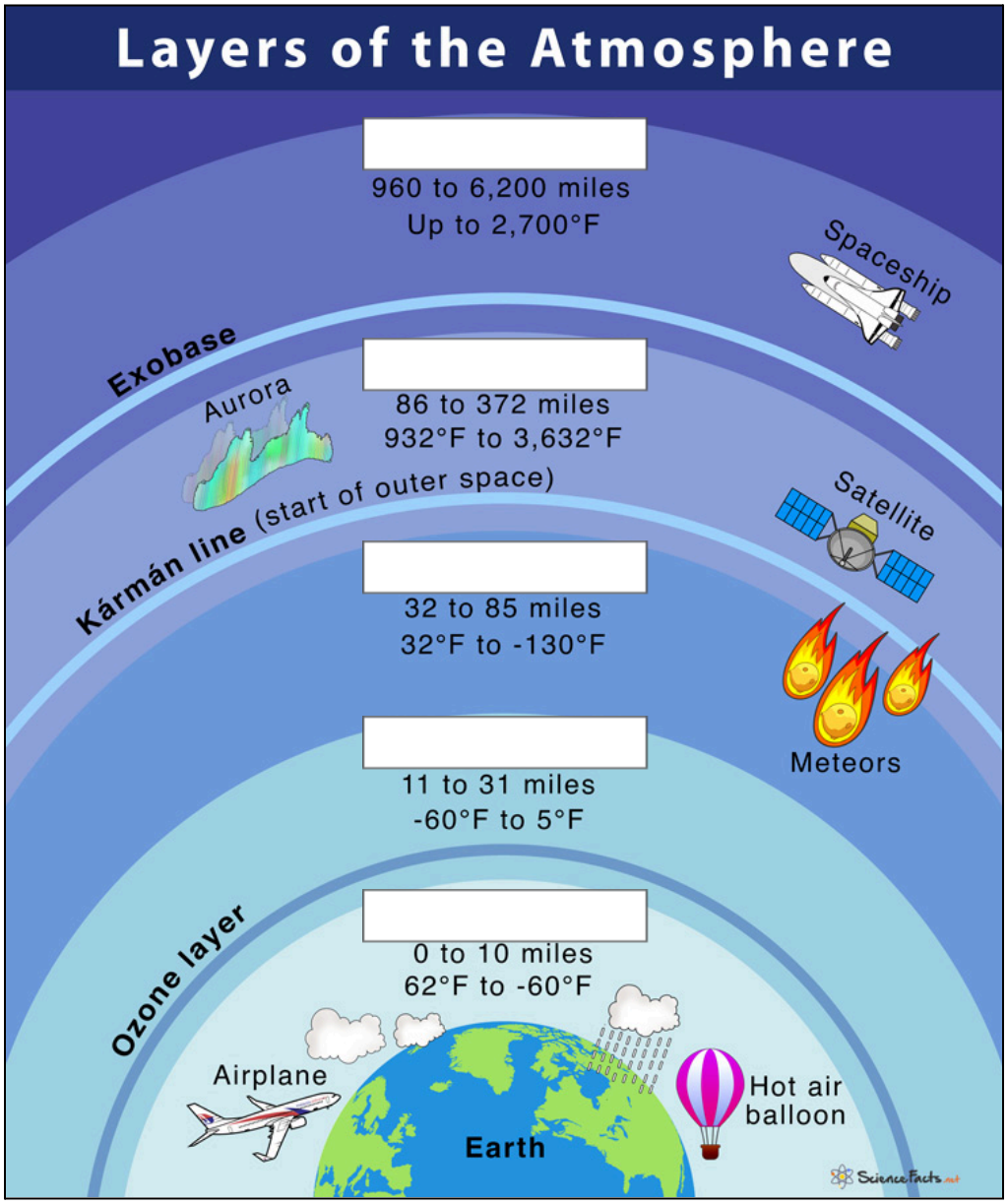
IB Geography – Lesson 1. The Atmospheric System

Starter: Watch the video linked on GlobalGeek about the Earth's Atmosphere.

Label the five boxes on the diagram below with the correct names for the five layers of the atmosphere.



Task 1. Complete the sentences below using the key words in the box underneath.

The atmosphere is an _____ system, receiving radiation from both the sun and the _____. The energy of the earth is very _____ but it does have an effect in particular in urban climates. Incoming solar radiation is referred to as _____

The main energy that drives all of our weather systems and our climate comes from the sun. The vast majority of this energy is absorbed at the _____ whereas energy is generally lost in the _____ regions. However, this energy is _____ to higher latitudes by wind and air _____.

Choose from this keyword list:

circulations **open** **insolation** **earth** **equator** **redistributed** **polar** **small**

Task 2. Match the key term to the definition in the table below:

Key Term	**Definition**
Short-wave radiation	The process where water vapour, C02, CH4 & CFCs allow SW energy from the sun to pass through the atmosphere and heat up the earth. However some of the resultant LW radiation is trapped leading to a heating of the earth.
Long-wave radiation	This occurs as a result of increased quantities of greenhouse gasses in the atmosphere owing to human activities and their impact on these fragile atmospheric systems.
Convection	This is the energy leaving the earth as infrared radiation at low energy and contains less energy than shortwave radiation. Generally emitted by cold bodies.
Conduction	This is the transfer of heat by movement of a gas or liquid.
Greenhouse Effect	This is the energy from the sun that enters the earth's atmosphere (very short wavelengths) such as ultraviolet and visible light. Generally emitted by hot bodies.
Enhanced Greenhouse Effect	This is the transfer of heat by contact.

Task 3: Make a copy of the Atmospheric Energy Budget Diagram on GlobalGeek. Then watch the video: *How Does the Climate System Work?* Use the information to make annotated (around the diagram) notes on how the energy budget works and transfers at each stage.

Task 4. Using the video, answer the following questions:

1. What prevents all incoming shortwave energy from reaching the earth's surface?
2. Do you think all Earth surfaces reflect the same amount of radiation?
3. Name three common greenhouse gases
4. What does the greenhouse effect achieve?
5. Explain what other factors influence the atmosphere.

Task 5. **Click here** to be taken to Cool Geography. Read the information carefully on the page before completing the four activities in full, at the bottom of the page. Make copies of the maps and diagrams where necessary.