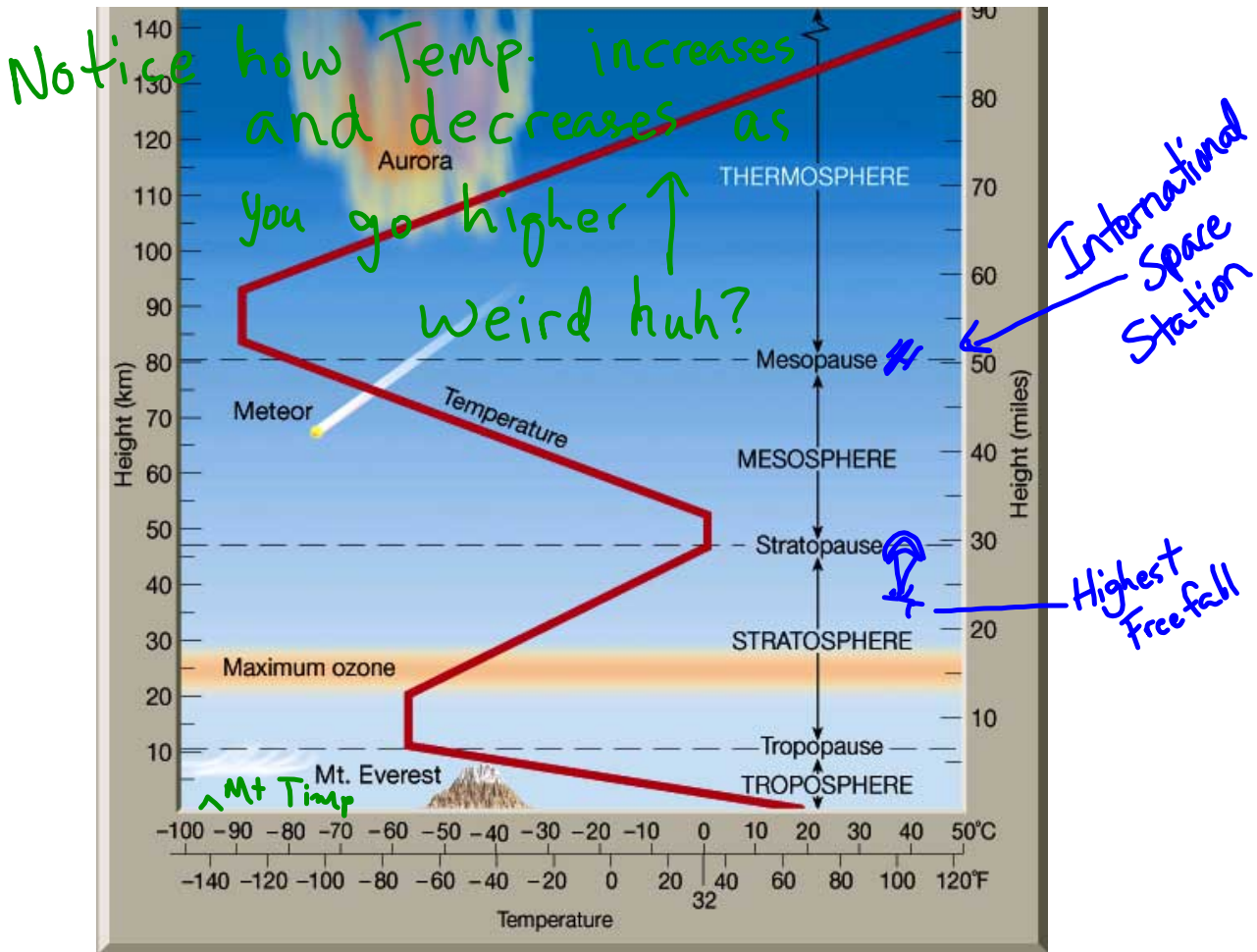


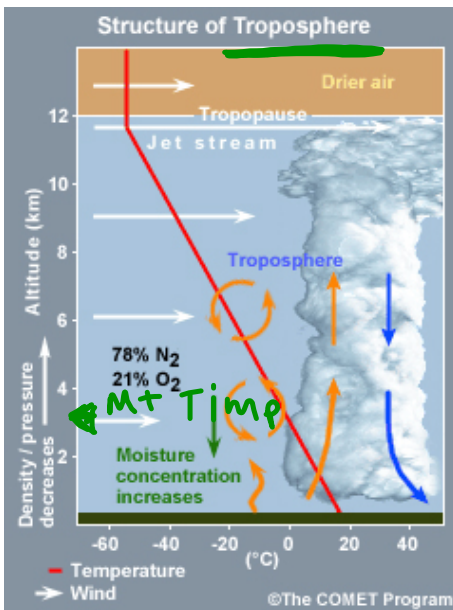
## Bellringer

1. What's the most abundant gas in the atmosphere? Second most abundant?
2. Which two gases, of the last 1% of the atmosphere, can largely have an impact on the atmospheric processes?
3. Which of the four layers of the atmosphere do we live in?
4. What are some contributing factors that influence local climates?

## Learning Objectives:

- I can identify contributing factors that influence local climates.
- I can identify the composition of the atmospheric gases.





It extends from the earth's surface to an average of 12 km (7 miles)

The troposphere is 70% Nitrogen (N<sub>2</sub>) and 21% Oxygen (O<sub>2</sub>). The lower density of molecules higher up would not give us enough to survive.

The air is much drier above the tropopause, in the stratosphere.

Winds increase with height up to the jet stream.

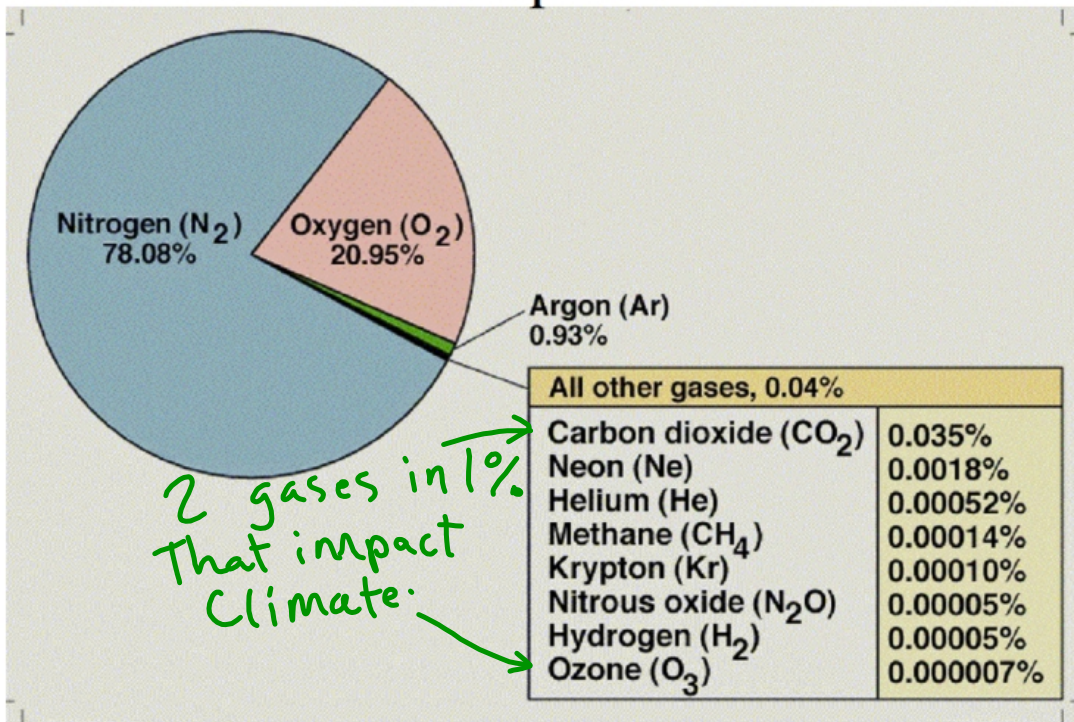
The temperature averages 15°C (59°F) near the surface and -57°C (-71°F) at the tropopause.

The layer ends at the point where temperature no longer varies with height. This area, known as the tropopause, marks the transition to the stratosphere.

The temperature generally decreases with increasing height up to the tropopause

Where we live and where weather is.

## Composition of Dry Air in the Lower Atmosphere of Earth



## What is climate?

Climate is defined as an area's long-term weather patterns. The simplest way to describe climate is to look at average temperature and precipitation over time. Other useful elements for describing climate include the type and the timing of precipitation, amount of sunshine, average wind speeds and directions, number of days above freezing, weather extremes, and local geography.

While it's fairly easy to describe a location's climate by examining weather data, a greater challenge is figuring out why the climate of one place differs from that of another. To do so, you must consider all the factors that work together to determine climate.

1. Why might one place have cold, snowy winters, while it rarely snows at another place only a hundred miles away?

what makes SLC different from St. George?

## What Influences Climate?

The climate of any particular place is influenced by a host of interacting factors. These include latitude, elevation, nearby water, ocean currents, topography, vegetation, and prevailing winds. The global climate system and any changes that occur within it also influence local climate.

How might each of these factors control climate here?

simple definitions on next slide

LATITUDE

Surface temperatures vary with latitude.

ELEVATION

Climate zones coincide roughly with elevation ranges.

NEARBY WATER

Sea surface temperatures affect land temperatures.

OCEAN CURRENTS

Water temperatures indicate transfer of heat energy by currents.

TOPOGRAPHY

Local variations in elevation can cause local variations in climate.

VEGETATION

Type of ground cover and seasonal changes affect climate.

PREVAILING WINDS

Winds deliver air masses with specific properties.

