

Atmospheric Review (APES)

1. Who has the elemental gas that makes up 78% of our atmosphere and is needed for proteins and Nucleic acid molecules?

I have NITROGEN. It is taken out of the atmosphere by nitrogen fixing bacteria in the soil and made available to plants.

2. Who has the elemental gas that only exists by itself due to the process of photosynthesis? It makes up 21% of the atmosphere.

I have OXYGEN. It's as important to us as CO₂ is to plants.

3. Who has the atmospheric molecular gas that accounts for 36-70% of the natural greenhouse effect here on Earth?

I have WATER VAPOR. When you add this to droplets in clouds, they account for over 85% of the natural greenhouse effect.

4. Who has the atmospheric molecule that has increased around 25% over the last 300 years due to burning of fossil fuels and deforestation?

I have CO₂. It is a product of cellular respiration and combustion of basically all fossil fuels and biomass.

5. Who has the atmospheric molecule that is way less than 1% but has increased by 150% due to fossil fuels, livestock, coal mining, and flooding of rice paddies?

I have METHANE. That was personally hard to admit, but it is easy for a melting permafrost to emit this potent greenhouse gas.

6. Who has the schizophrenic atmospheric gas that is wonderful in the stratosphere but a potent pollutant if released into the troposphere?

I have OZONE. It is made of 3 oxygen atoms and is crucial for shielding life on Earth from ionizing UV radiation coming from the Sun. Suck it down here and your lungs will burn and your eyes will water.

7. Who has the layer of the atmosphere that is 12 miles deep at the equator and 4 miles deep at the poles and contains 76 percent of atmospheric mass?

I have the TROPOSPHERE. In fact it's all around me, pushing from every side at 15 pounds per square inch.

8. Who has the layer of the atmosphere that goes from 6 miles to 31 miles altitude above the United States and is warmest at its upper limit?

I have the STRATOSPHERE. I'll bet you were expecting the O₃ to be mentioned. Yes, Ozone is a great gas if it's up here, but not so much if in the troposphere.

9. Who has the layer of the atmosphere that is 31 to 56 miles above the Earth and goes from warm to colder as you move to its ceiling?

I have the MESOSPHERE. Since meso means middle, this is not the uppermost layer!

10. Who has the layer of the atmosphere that starts 56 miles above the Earth and increases to extreme temperatures as you move higher.
I have the THERMOSPHERE. Its very top is known as the ionosphere where ionization happens due to ultraviolet light striking oxygen.
11. Who has what is caused by uneven heating of the atmosphere by the sun, the coriolis effect as Earth rotates, and seasons due to planetary orbiting of the Sun?
I have ATMOSPHERIC CIRCULATION. It's all about uneven heating, hot air rises, cold air sinks, and whoa...the Earth is spinning!
12. Who has the explanation for why object moving in the N Hemisphere always curve to the right and to the left in the S Hemisphere?
I have the CORIOLIS EFFECT. Which way does your toilet flush? Well, whichever way the spray nozzles are pointing...totally unrelated! Get over it!
13. Who has what is caused by cooler air over an ocean and warmer air over the land next to it?
I have a SEA (ONSHORE) BREEZE. Cold air is denser than warm air, so go fly a kite on a beach on a warm day, it will never blow into the ocean.
14. Who has what happens at night when the land cools the air over it to temperature lower than the ocean next to it?
I have a LAND BREEZE. Did I just say colder air is denser than warm air, so don't go windsurfing at night at the beach because you may end up.....never hear from again.
15. Who has the type of huge storm that turns counterclockwise in the N hemisphere and is called a typhoon in the S hemisphere where it turns clockwise?
I have HURRICANE. The winds move toward the eye and curve to the right in the N hemisphere and to the left in the S hemisphere.
16. Who has the periodic deviant Pacific ocean weather pattern that bring S California extra rain (like this year) but may cause drought in Africa?
I have EL NINO. Trade winds weaken in the S Pacific and head East (toward us).
17. Who has the name of the 2005 hurricane that cost the United States 1,836 lives and \$81 billion dollars?
I have KATRINA. New Orleans and its coastal wetlands are experiencing subsidence due to levees on the Mississippi and no delta building going on. No future there unless your name is "Submarine."