

## Review Questions

1. What is the basic structure of the atmosphere? Plot altitude vs temperature and label layers and boundaries. Mark the location of the ozone layer and smog.
2. What is the composition of the earth's atmosphere? What are the 4 source categories of atmospheric constituents? Give an example compound and process for each category.
3. What determines how uniform the concentration of a compound will be in the atmosphere? Give an example of a uniformly distributed compound and a highly spatially variable compound. What property controls spatial variability?
4. What was the earth's atmosphere like before today? Describe the 3 major time periods and their composition.
5. How are we changing the composition of the atmosphere today? What effect does this have on the temperature of the planet? Show this using our one layer model and black body assumptions.
6. What set of reactions give the approximate natural (background) ozone concentration and profile? Name the set and write reactions. What's missing from this model of natural ozone levels?
7. Describe the problem associated with CFCs (list steps from emissions to the final result).
8. Explain "good" ozone vs "bad" ozone.
9. Give the major sources and sinks of sulfur, nitrogen and carbon. Two of each is fine.
10. Explain London smog (ingredients and detrimental effects).
11. Explain Los Angeles smog (ingredients and detrimental effects). Are orange trees to blame?
12. How can we reduce ozone levels in polluted regions?
13. Why is PAN important?
14. How do clouds affect the planet and life on it? What role do particles play in cloud formation? Would clouds be able to form on earth without particles?
15. What are the two properties of a particle that determine its impact on clouds? What two equations govern these properties (name them).
16. What is the formula for RH? SS? What happens to an air parcel as it rises?
17. What is nucleation? Explain the demo from class and draw parallels to clouds and particles.
18. What measurement technique is based on absorption of light? Emission?
19. What are the characteristics of the perfect instrument?
20. Why are particles so hard to measure? Esp. organics.