

Atmosphere Problem Set #1  
Atmospheric Formation, Seasons, Global Climate, Local Weather, and Moisture

1. How did Earth's atmosphere evolve to what it is today?
2. One would think that the southern hemisphere would have extremely high temps in the summer and extremely low temps in the winter. But this is not true – Explain.
3. Explain why we have seasons.
4. What are the three types of heat transfer? How do they differ from each other?
5. Describe how the Earth's energy balance works.
6. Why can warm air hold more moisture than cold air?
7. How is the color of a surface related to energy absorption/albedo?
8. Describe the characteristics of the troposphere.
9. Why does atmospheric pressure decrease with increasing altitude?
10. List and describe four ways deserts can form.
11. Describe the windward and leeward sides of the mountain.

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12. Explain the Coriolis effect. How does it influence weather?
13. ~~How are dew point temperature and air temperature, combined with relative humidity, used to forecast precipitation?~~
14. Why is relative humidity higher in the morning than in the middle of the afternoon?
15. Why is the windward side of a mountain greener than the leeward side? Use the following terms in your explanation: dew point temperature, air temperature, condensation nuclei, clouds, and precipitation.
16. What are the differences between stratus, cumulus, and cirrus clouds?
17. Explain the formation of sleet and of freezing rain.