

Questions your Classmates Submitted
Earth Science
Some of these *will* appear on the test.

I give you these without comment – they are unedited (except for clarity). This is what your fellow students think might make good test questions.

1. What is the definition of temperature?
2. According to the 2nd indirect effect...
 - Does the volume of water in a cloud change?
 - Does the surface area of a a cloud change?
 - Why?
3. How does every cloud droplet and piece of precipitation from a cloud start?
4. List two instruments used to measure air pressure.
5. When using a sling psychrometer, will the wet bulb read higher or lower than the dry bulb? Why?
6. Who came up with the fictional material “Ice 9”?
7. Does every cloud drop start with aerosol activation?
8. What are two lies previous science teachers have told you about either clouds, rain-drops, or snowflakes?
9. Name two types of precipitation we have seen in the month of October.
10. Name three gases in the atmosphere besides water vapor.
11. Why does the atmosphere temperature decrease and then increase with increasing height?
12. What does sinking air do?
13. What is the definition of dew point?

14. What are the two methods of cloud seeding? Who came up with each?
15. What are the layers of the atmosphere?
16. How does radar work, and why is it unreliable for precipitation estimation?
17. How and why does freezing rain turn to ice when it hits the ground?
18. Why do we usually use Mercury in barometers?
19. What are the ingredients of a cloud?
20. Name at least 4 rain measuring instruments and their basic functional technique.
21. Name 6 types of precipitation.
22. What are the basic two methods of cloud seeding?
23. Describe the cloud creation process.
24. Higher in the atmosphere, where pressure can easily be at or less than 0.3 atm, does water boil at higher or lower temperature? Explain.
25. Name the three types of energy transfer mechanisms.
26. The temperature at the surface is 14 degrees C. The dew point is 4 degrees C. How high would the LCL be?
27. What does 70-80 percent of liquid rain start out as?
28. Draw a picture of a large raindrop.
29. What is the rate of temperature decrease with increasing altitude called?
30. Describe accretion.
31. Describe the four principle methods by which aerosols influence climate.
32. What are the phase changes of a liquid?
33. Name and describe 3 different types of precipitation.
34. What is the collision-coalescence process?
35. What is the size cutoff for drizzle?

36. Why doesn't water always freeze at 0 degrees C?
37. What would the equilibrium temperature of the Earth be if ALL of the outward-going longwave radiation was absorbed (and re-emitted) by the atmosphere?
38. How are anthropogenic global warming and the greenhouse effect different?

The following are questions that previous students in previous years have asked. These are also fair game.

1. Snowflakes really aren't all different. What are some shapes that snowflakes take, and what causes them to change shape?
2. Approximately how much has the average temperature increased in the last century?
3. Draw an occluded front and indicate where the warm and cold weather occur.
4. Name at least 3 instruments used to measure precipitation and give their strengths and weaknesses.
5. Why do clouds have flat bottoms?
6. What are the 5 types of air masses?
7. What type of precipitation is expected to develop behind a warm front?
8. Describe frontal wedging.
9. Cooler air is moving from high pressures above the sea to warmer, low pressures above the land. What is this kind of local wind phenomena called?
10. Draw the 3 cell model. Label clearly all appropriate features.
11. Draw a phase diagram for water, labeling all phases appropriately and any relevant temperatures.
12. Name the main 3 greenhouse gases (in order).
13. Name at least 4 forces in the Navier-Stokes' equations.
14. Draw 4 different types of precipitation.

15. Name the 3 cells in the three cell model, in order of increasing latitude. (In order from near the equator to near the poles).
16. You can have any of the three instruments to try and describe as much about a rain event as possible. Which do you choose and why? Joss-Waldvogel Disdrometer, Tipping Bucket Rain Gauge, and a Weighing Rain Gauge.
17. What are Dr. Larsen's definitions of the 4 laws of thermodynamics?
18. What is the name for the zone around the equator where surface winds converge?
19. What does PGF stand for?
20. Name three different ice crystal habits.
21. What was the instrument we used in class (and outside) to calculate relative humidity?
22. What are the four different ways of measuring the amount of moisture in the air? Describe what each means.
23. Is evaporation a heating or a cooling process?
24. What is the complete, formal definition of temperature?
25. Is condensation a heating or a cooling process?
26. Explain what type of feedback occurs when a microphone squeals as it is put close to a speaker. Explain why this happens.
27. What is a triple point?
28. How do you make a cloud?
29. How does the happy drinking bird work?
30. Describe how an ice crystal's shape gives you information about its history.
31. Describe the Bergeron process.
32. List the three main greenhouse gases.
33. While ice is turning into liquid water through a heating process, does its temperature change?

34. Describe what positive feedback means.
35. What is an accurate physical description of a raindrop's shape?
36. In what layer of the atmosphere is weather experienced?
37. Explain dew point's connection to humidity.
38. What are the four laws of thermodynamics?
39. What is adiabatic cooling?
40. Give an example of a negative feedback system.
41. What are the three classifications of aerosol particles from smallest to largest?
42. Given what you know about evaporation rates, humidity, and dew points versus ambient temperatures, should the drinking happy bird work better when the humidity is high or low?
43. List the four reasons for vertical motion of air in the atmosphere.
44. What is the definition of advection?
45. How does the Coriolis effect change the direction of the winds (in the Northern Hemisphere)?
46. What is the name of the spiral wind pattern around high pressure systems?
47. Why is a cornfield so much warmer than the area adjacent to the field?
48. Explain (using diagrams if necessary) how a sea breeze occurs.
49. What are all horizontal winds ultimately caused by?
50. Draw the three circulations present in the northern hemisphere of a rotating Earth.
51. What type of pressure is generally associated with fair weather?
52. By what processes do cloud particles get bigger?
53. At the surface, do winds tend to move from H to L or L to H pressure areas?
54. Why does air move up and down?
55. Why is the sky blue?