

ECPS Module 3 Summary Worksheet

1. The mass of air surrounding a planet is called its _____. Everything that comes into contact with the mass of air surrounding the earth is subjected to _____, which is, on average, 14.7 pounds per square inch at sea level. Even though this is a lot of pressure, we don't feel it, because _____ pressure pushes on you from all sides, even from within.
2. In Experiment 3.1, the cans were filled with steam that turned into _____ when the cans were put in ice water. The upright can did not crumple, however, because the steam was replaced with _____ that continued to exert _____ on the inside of the can. The can placed _____ in the water did crumple, however, because _____ could not replace the steam, so very little _____ was being exerted inside the can.
3. A _____ measures atmospheric pressure. It is composed of a tube with no _____ inside that is inverted over a pool of _____, which is usually mercury. Since the _____ is pressing down on the pool, and since there is no air exerting _____ inside the tube, _____ is forced up the tube. The _____ of the liquid in the tube is a measure of the _____.
4. When measuring atmospheric pressure, several units can be used. _____ tells you how many pounds are exerted on an 1-inch by 1-inch square. When reported in _____, it tells you the height of a column of mercury in a barometer, in English units. When reported in _____, it tells you the height of the column of mercury in metric units. Finally, pressure can also be reported in _____, which tells you the pressure relative to earth's average atmospheric pressure at sea level.
5. The atmosphere can be divided into two general layers. The _____ is the lower layer, and it contains air that has the same _____ - as the air at sea level. The upper layer is called the _____, and the mixture of gases in this layer is not _____. Throughout both layers, however, the total amount of air _____ with increasing altitude.
6. The homosphere is generally divided into three regions. From the lowest to highest, they are the _____, the _____, and the _____. The first two layers are separated by the _____; the second two are separated by the _____, and the last layer is separated from the heterosphere by the _____. Throughout all of these regions, as well as the heterosphere, the atmospheric pressure continually _____ with increasing altitude.
7. In the troposphere, the temperature steadily _____ with increasing altitude. This is called the temperature _____ of the troposphere. The

troposphere is often called earth's _____ layer, because it contains almost all of earth's clouds, rain, snow, storms, etc.

8. Narrow bands of high-speed winds that circle the earth, blowing from west to east are called _____. They are found in the _____ portions of the stratosphere and the _____ portions of the troposphere. They tend to _____ storms and affect which parts of the earth experience high _____ or low _____.
9. In the stratosphere, the temperature _____ with increasing altitude. This is mostly due to the _____, which is found there. In the mesosphere, the temperature _____ with increasing altitude. When rocks from outer space fall into the mesosphere and burn up, they are called _____.
10. When energy is transferred as a consequence of temperature differences, we call it _____. When an object gains energy, the _____ that make it up move faster. A _____ really measures the average speed at which the _____ of a substance are moving. As a result, temperature is a measure of the _____ of _____ in a substance's _____.
11. The "hole" in the ozone layer is actually a seasonal _____ in the concentration of ozone in the ozone layer. It is centered over _____. Human-made substances called _____ are at least partially to blame. Unlike many chemicals, they are so _____ that they can survive the trip up to the ozone layer, where they can destroy ozone. Interestingly enough, this same property makes them _____ to human beings. They are very efficient chemicals that can be used for _____, _____, and _____. Despite their usefulness, their elimination has been called for by the _____. This will, most likely, cause an _____ in the number of people who die each year.
12. The "hole" in the ozone layer was discovered _____ CFCs were widely used. However, since the production of CFCs, the "hole" has gotten "_____." Although CFCs are heavy, they are lifted up to the ozone layer by the _____. This is why the ozone "hole" is a _____ phenomenon and why it is centered over the _____. While the elimination of CFCs will _____ the depth of the ozone "hole," it will most likely _____ more lives than it will save. The ozone "hole" does not contribute to _____. In fact, a reduction in the amount of ozone in the ozone layer will _____ the average temperature of the earth.

13. The heterosphere is generally divided into two layers: the _____ and the _____. While the _____ is lower than the _____, they can both be considered a part of outer space. The number of molecules in the _____ is so small that a thermometer would read incredibly low temperatures. However, the average _____ of the few molecules that are there is very _____. The _____ is composed of those atoms and molecules actually in orbit around the _____. It is difficult to say where the _____ ends and interplanetary space begins.
14. Between the upper portions of the _____ and the lower portions of the _____, there is a region where the atmosphere's gases are ionized. It is called the _____. Atoms are composed of _____ (which have positive electrical charge), _____ (which have negative electrical charge), and _____ (which have no electrical charge). Atoms always have the same number of _____ and _____. This means that overall, atoms have no net _____. When an atom loses (or gains) electrons, there is an _____ of positive and negative charges, and the atom becomes _____. When this happens, it is no longer an atom, but is instead an _____.
15. The Northern Lights and Southern Lights are examples of _____. They appear in the night sky as glowing regions of brilliant _____ that tend to move over the sky in interesting ways. They are the result of high-energy _____ between ionized particles in the _____.