SOL REVIEW OF METEOROLOGY

Fill in the blanks.

The composition of Earth’s 1) \_\_\_atmosphere\_\_\_\_ has changed over geologic time. The early atmosphere contained little 2) \_\_oxygen\_\_\_ and more carbon dioxide than the modern atmosphere. Early photosynthetic life such as 3) \_cyanobacteria\_ (blue-green algae) consumed 4) carbon dioxide\_ and generated oxygen. It was only after early photosynthetic life generated oxygen that animal life became possible. Earth’s atmosphere is unique in the solar system in that it contains substantial oxygen 21%. The rest is made of 5) \_nitrogen\_\_ (78%) and other trace gases (1%). The atmosphere of 6) \_\_Venus\_\_\_\_ is mostly carbon dioxide and very dense with a great greenhouse effect. Other planets have different atmospheres. The atmosphere of 7) \_Mars\_ is very thin and mostly carbon dioxide. The planet 8) \_Mercury\_ has no atmosphere.

The composition of the atmosphere can change due to human, biologic, and geologic activity. Human activities have increased the carbon dioxide content of the atmosphere. Man-made chemicals, including CFCs, have decreased the 9) \_ozone\_\_ concentration in the upper atmosphere. Volcanic activity and 10) \_meteorite\_ impacts can inject large quantities of dust and gases into the atmosphere. The ability of Earth’s atmosphere to absorb and retain heat is affected by the presence of gases like water vapor and carbon dioxide.

Weather and climate are different. 11) \_\_Weather\_ describes day-to-day changes in atmospheric conditions. 12) \_Climate\_\_ describes the typical weather patterns for a given location over a period of many years. Both weather and climate are measurable and, to a certain extent, predictable. The four major factors affecting climate are 13) \_latitude\_, elevation, proximity to bodies of water, and position relative to mountains. Earth’s major climatic zones are the polar, 14) \_temperate\_, and tropical zones.

The Earth’s surface is much more efficiently heated by the sun than is the atmosphere. The amount of energy reaching any given point on Earth’s surface is controlled by the angle of sunlight striking the surface and varies with the seasons. Areas near the 15) \_equator\_ receive more of the sun’s energy per unit area than areas nearer the poles. Energy transfer between Earth’s surface and the atmosphere creates the weather. 16) \_Convection\_ is the major mechanism of energy transfer in the oceans, atmosphere, and Earth’s interior and is a major cause of weather.

The conditions necessary for cloud formation are air at or below 17) \_dew point\_ and presence of condensation nuclei. Cloud droplets can join together to form 18) precipitation\_.

19) \_\_Winds\_ are created by uneven heat distribution at Earth’s surface and modified by the rotation of Earth. The 20) \_Coriolis\_ effect causes deflections of the atmosphere due to the rotation of Earth. Global wind patterns result from this uneven heating of Earth by the sun and are influenced by the Coriolis effect.

Word Bank

winds

convection

Mercury

Mars

Venus

nitrogen

oxygen

dew point

precipitation

Coriolis

meteorite

ozone

cyanobacteria

temperate

atmosphere

carbon dioxide

weather

latitude

climate

equator