Llano Estacado Master Naturalist Curriculum Guide

Unit #8: Weather and Climate

Summer is delicious, rain is refreshing, wind braces up, snow is exhilarating; there is no such thing as bad weather, only different kinds of good weather.

 John Ruskin

Unit Goals: After completing this unit, volunteers should be able to:

* Discuss what processes affect daytime and nighttime temperatures
* Describe the main processes driving Texas weather and climate
* Identify cloud formations and the weather and climate they can predict or represent
* Understand the short-term and long-term relevance of climate variability and change to Texas ecology
* Describe a typical year of weather in Texas
1. About 400 million years ago, oxygen reached 10%, high enough to support an **\_\_\_\_\_\_\_\_\_\_\_** layer in the stratosphere that would protect the earth’s surface from lethal levels of ultraviolet radiation.
2. The earth’s seasons are caused by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_which affects how much direct light from the sun a region receives.
3. The source of energy for the morning rise in temperature is the **\_\_\_\_\_\_\_\_\_\_**which heats the ground which heats the \_\_\_\_\_\_\_\_\_\_next to it.
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_describes the transfer of heat from the ground to the air. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ describes vertical wind currents carrying the resulting hot air up away from the ground.
5. An atmospheric boundary more common in Texas than anywhere else in the world is a \_\_\_\_\_\_\_\_\_\_\_. A \_\_\_\_\_\_**\_**\_\_\_\_\_ is formed when warm, moist air from the Gulf of Mexico moves in the**\_\_\_\_\_\_\_\_**direction and contacts with hot, dry air moving in the\_\_\_\_\_\_\_\_direction from higher elevations.
6. A common measure of humidity is **\_\_\_\_\_\_\_\_\_\_\_\_\_** humidity, the amount of water in the air divided by the amount in the air if it were saturated. When the temperature equals the dew point, the relative humidity equals \_\_\_\_\_\_\_%.
7. \_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_ affect the global weather over Texas by altering the thunderstorm activity along the equator. During **\_\_\_\_\_\_\_\_\_\_,** warm waters of the eastern Pacific host thunderstorm activity. During \_\_\_\_\_\_\_\_\_\_\_, the cold sea surface temperatures suppress thunderstorm activity.

The two basic structure categories of clouds are **\_\_\_\_\_**\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_. Give a brief description of these two categories of clouds.

1. The third cloud descriptor is \_\_\_\_\_\_\_\_\_**\_\_\_,** literally translated in Latin to “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.”
2. Due to its size, Texas has a great variation of climate and landscapes, factors which influence habitat diversity. Most of Texas occupies one of two global climate categories – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – the exception being mountainous elevation in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Additional Materials

Global Climate Change / Vital Signs of the Planet <https://climate.nasa.gov/> For information on the status of climate change visit this site.

Go to this site for an interactive chart of clouds from the National Weather Service. [https://www.weather.gov/jetstream/cloudchart#myModalh1](https://www.weather.gov/jetstream/cloudchart%22%20%5Cl%20%22myModalh1)