

Appendix 1: Teaching Standards

With the shift to the Common Core Essential Standards in the state of North Carolina this past school year, there has fortunately already been a focus placed on a global view of academics.

Before I begin this unit, my students must have a basic understanding of the atmosphere and the weather that occurs in it. Therefore, before I begin this unit I will address the following standard:

7.E.1.5 Explain the influence of convection, global winds and the jet stream on weather and climatic conditions.

In order for students to understand the impact of humans on air quality and the atmosphere, they must first understand what is naturally occurring in our atmosphere and for what purpose. First off, students must be able to understand the difference between climate and weather so that they are able to understand how weather changes and climate change is affecting our world. The weather changing involves three main components to understand: air movement, formation of clouds, and precipitation. Without energy, none of these things would be possible; the energy that is causing these changes comes from the sun. Convection transfers heat from one place to another. Students must be able to understand that this change in heat ultimately results in a change in pressure. These changes in temperature and pressure lead to changes in the atmosphere resulting in winds, jet streams, the Coriolis Effect, and the Gulf Stream. Students must also be able to understand how these are impacted because they are occurring on a rotating planet.

In this unit plan, I will address the following Essential Standard for 7th grade Science:

7.E.1.6 Conclude that the good health of humans requires: monitoring the atmosphere, maintaining air quality and stewardship.

Once students have gained the background atmosphere and weather content from the previous essential standard, students are now able to study this standard to understand how air quality and the atmosphere influences our everyday lives. I will teach the students the Air Quality Index (AQI) so that they can understand the variants of air quality and how our advancements in technology have allowed us to study air quality. Air quality affects the quality of life for all living things on earth, which is why we, as scientists, must study the air quality and determine what needs to be done to protect our environment and climate. Our entire world and all the living things in it (not just humans) are being impacted by global ozone depletion, air pollution, increased particulate matter, acid rain, and global warming concerns. While students may have heard of some of these global concerns as they are major topics of conversation in our

current media realm, they may have some misconceptions and may not fully understand how our air quality is being impacted. In order to understand the role that they play in our changing world of climate and air quality, they must understand stewardship and how our everyday actions impact the rest of the world.