Instructional Unit Title: Transfer and Transformation of Energy

The teacher may provide graphic organizers and examples of energy transformation so the student can evaluate reactions and conservation of the varying forms of each.



The teacher may utilize various resources (digital, video, simulations) demonstrating the organization of the electromagnetic spectrum so that students can comprehend how the electromagnetic spectrum transfers information to organisms.



The teacher will differentiate the properties of waves so students can analyze and predict changes that would occur with changes to a waves' features.



The teacher may utilize a variety of resources (digital, video, simulations) demonstrating reflection, refraction, and absorption so that students can analyze the effects on waves passing through a medium or surface.



The teacher may describe the methods in which heat is transferred so that students can identify and explain examples of heat transfer in their environment



The teacher may model weather systems and dramatize interactions of the earth and atmosphere and their impact on humans so the student can summarize how multiple systems combine to create weather patterns.



The teacher may illustrate and explain the layers of atmosphere so that students can differentiate between the layers and relate how their properties may affect the interaction of energy movement.



The teacher may utilize video clips, media reports, and articles about energy sources so students can evaluate different forms of energy and determine sustainability and efficiency of those resources.



The teacher will provide opportunities for students to explore global weather patterns so that students can predict the likely changes to environmental conditions.



The teacher may engage in a discussion about and utilize atmospheric measurement tools and simulations so that students can make predictions about the environment around them.



The teacher may facilitate a Socratic Seminar focusing on environmental conservation so that students can analyze negative and positive human impacts on a local and/or global scale.



PERFORMANCE ASSESSMENT: You are an American Congressman asked to write a persuasive essay to the World Health Organization regarding carbon emissions and their effects on the global environment. Select a position to argue about carbon emissions (whether or not carbon emissions are damaging, beneficial, or non-partisan to the environmental well-being). Your argument must explain how energy consumption and availability are linked to the production of carbon emissions, how the transfer of energy is or is not affecting the environment, and how viable/effective forms of non-carbon emitting energies could be.

This unit was authored by a team of Colorado educators. The unit is intended to support teachers, schools, and districts as they make their own local decisions around the best instructional plans and practices for all students. To see the entire instructional unit sample with possible learning experiences, resources, differentiation, and assessments visit http://www.cde.state.co.us/standardsandinstruction/instructionalunitsamples.