

Science Cycle 2--GROUP WORK: Change

"The secret of
CHANGE
is to focus all of
your energy not on
fighting the old, but
on building the new."
-SOCRATES

What you will learn:

Change is all around you. Changes in the universe over time have allowed for life on earth. Changes in understanding allow for new ideas to surface. In the quote to the left, Socrates tells us to accomplish change by putting our energy into the new. That is exactly what happened in our country during the Industrial Revolution. We started to **change** our focus towards new ideas in the way of inventions, manufacturing, energy production, and more.

Our focus for Trimester 2 will be Change. We will look at the different forms of energy, including alternative forms that have become more prevalent in our society. We

will even have the opportunity to design a contraption/device that demonstrates how energy **changes** from one form to another while relating that device to a machine of medieval times. Through this work we can even further understand the **changes** our modern machines have made since those times. We will utilize our Math skills and apply our knowledge of physics (thanks to Newton's Laws) to calculate various quantities. We will have the opportunity to show our learning through hands on demonstrations that we create. In Math we will have a chance to make changes to our Dream Houses and look at tessellations (which are all about **change**). Our culminating work will have us designing a prototype (to scale) that makes a positive impact on Oak Farm in the way of alternative energy sources. It is going to be EXCITING! Can you feel the **change** in the air?

Guiding Questions:

- 1: Use Newton's Laws of motion to discover simple and compound machines. (7.PS.4-7.PS.7). How do you use Newton's Laws of Motion in your everyday life. Site specific examples and which of Newton's Laws you are using in those examples.
- 2. What are the different types of energy and how is energy transferred from one form to another? Is energy lost when this happens? (7.PS.8) Recall the Law of Conservation of Energy. How does this apply to your life. Think about your cosmic task and the energy within you. Where did the energy within you come from? How are you using this energy to search for your cosmic task?
- 3: What are some alternative energy forms? Do you have a new outlook you have on your personal energy use or may your family's energy use? Have you considered using alternative energy? If so, which ones and how?
- 4: How can we design and construct a device that converts energy from one form to another to perform work? This device should have a practical use in your

everyday life on the farm/land at Oak Farm and should explore alternative energy forms(6-8.E.1, 6-8.E.2, 6-8.E.3, 6-8.E.). Consider the project you have completed above using the design process. If you could make another change (or changes) what would they be? Why? How can we implement this device right now at Oak Farm? How does it make your life or the life of others easier here at school?

What you will do:

- 1. *Construct a device using Newton's Laws of Motion*
- 2. *Do an energy demonstration for your classmates.*
- 3. *Participate in a Cars and Energy Lab*
- 4. *Come Back Can!*
- 5. *You will make a difference* *in your Oak Farm school community through science and math.*

