STEM Newsletter

November 2017 | Food for Thought

Dear Parents,

For the holiday season month, our themes for Hands-On Science were *Food for Thought: The Science of Nutrition* (November) and *Plasma & Energy* (December). Students investigated the physical and chemical properties of the various components of milk. By vigorously shaking heavy whipping cream inside of a sealed jar, students were able to separate the milkfat from the buttermilk and extract lovely home-made butter! This demonstrates the limited solubility of fats and lipids in aqueous solutions such as milk; the mere act of shaking it was sufficient to separate lipids from the other, more water-soluble components in the milk. Additionally, students learned to make nutritious and "healthy" cookies and learned some of the cool science behind nutrition. Delicious! Coming Up Next Month: **Plasma & Energy!**

Respectfully yours,

Edward Njoo
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NGSS Standards Covered This Month

LS1.C: Organization for Matter and Energy Flow in Organisms

- Plants, algae (including phytoplankton), and many microorganisms use the energy from light to make sugars (food) from carbon dioxide from the atmosphere and water through the process of photosynthesis, which also releases oxygen. These sugars can be used immediately or stored for growth or later use. (MS-LS1-6)
- Within individual organisms, food moves through a series of chemical reactions in which it is broken down and rearranged to form new molecules, to support growth, or to release energy. (MS-LS1-7)

PS3.D: Energy in Chemical Processes and Everyday Life

- The chemical reaction by which plants produce complex food molecules (sugars) requires an energy input (i.e., from sunlight) to occur. In this reaction, carbon dioxide and water combine to form carbon-based organic molecules and release oxygen. *(secondary to MS-LS1-6)*
- Cellular respiration in plants and animals involve chemical reactions with oxygen that release stored energy. In these processes, complex molecules containing carbon react with oxygen to produce carbon dioxide and other materials. *(secondary to MS-LS1-7)*

For more information on Olive Children Foundation S.T.E.M. program, please visit www.olivechildren.com/stem.

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