



STEM and Educational Outreach Program

Virtual Video-Chat Lessons

Lesson Title	Lesson Description	Next Generation Science Standards: Disciplinary Core Ideas	*Grade Level(s)
Chemical Reactions	<p>Concepts: physical changes, chemical reactions, states of matter, acid-base reactions, color-changing reactions</p> <p>Demonstration: catalytic reaction (gas production, heat generation), and polymerization reaction (liquid to semi-solid).</p>	Physical Science	2nd, 5th
Colors of Leaves / Plant Pigments	<p>Concepts: the science of Fall colors, photosynthesis, scientific inquiry/investigation</p> <p>Demonstration: extraction of the pigment chlorophyll from spinach leaves and separation into several different colors using a technique called chromatography.</p>	Life Science	1st, 2nd
DNA	<p>Concepts: DNA as a blueprint for life, cells, genetic traits, inheritance</p> <p>Demonstration: use a saltwater/detergent solution to extract DNA from strawberries</p>	Life Science	2nd through 5th
Ecosystems: Effect of pH on the Environment	<p>Concepts: human impact on the environment, climate change, pollution, pH as a measure of the strength of an acid or a base.</p> <p>Demonstration: color-changing pH measurements, DIY pH indicator using red cabbage, pH measurement of household chemicals/liquids</p>	Physical Science; Life Science	4th, 5th
Properties of Light	<p>Concepts: properties of light, diffraction, refraction, visible light spectrum</p> <p>Demonstration: diffraction of laser light, spectrometers</p>	Physical Science; Earth and Space Science; Engineering	3rd through 5th

**Grade level recommendation*

For more information or to schedule a Virtual lesson, contact casey.p.weininger.civ@army.mil