

Teacher: Collier	Date: October
Content Standard	<p>Students have an opportunity to engage in the following science practices:</p> <ul style="list-style-type: none"> *Ask questions and define problems *Plan and carry out investigations *Construct explanations and design solutions *Engage in argument from evidence
<p>Set the Goal-</p> <p>Without explicit learning goals, it is difficult to know what counts as evidence of students' learning, how students' learning can be linked to particular instructional activities, and how to revise instruction to facilitate students' learning more effectively. Formulating clear, explicit learning goals sets the stage for everything else.</p>	<p>Today's learning experience is all about getting kids excited and passionate about science. The new science standards calls students to act as scientists and engineers. Their future depends on their ability to think critically and problem solve. There are many opportunities to learn content throughout this lesson (see the How It Works section on the links to the activities).</p>
<p>ENGAGE</p> <ul style="list-style-type: none"> -Create curiosity by raising questions that assess students present scientific understanding. -Introduce student to the Task. -Introduce student to the tools that are available for working on the task. -Introduce students to the nature of the products that students are expected to produce. 	<p>Welcome students to the science lab. Tell students that today you have put together an exciting lab to prove that Science Isn't Spooky. Most of these activities come from Steve Spangler. Some kids and adults do not like science, I would like to think that is because they did not have the opportunity to act like scientists. Maybe their teachers used books and worksheets to teach science. While it is important that scientists read, in order to become a real scientist we must do science-</p> <p>Use Flaming Book-(bobsolarimagic.com/shop/Hot-Book-Fire-Book)</p> <p>Let's get started with the Halloween Pop (See Attached Notes)</p>
<p>EXPLORE</p> <ul style="list-style-type: none"> -Encourage Students to work together on Task. -Encourage students to solve the task in whatever ways that make sense to them and be prepared to explain their approach to others in class. -Ask probing questions to redirect students' investigations when necessary. 	<p>Tell students that next they will have the opportunity to explore dry ice. I will tell you two things about dry ice, and then you will spend some time working and experimenting with dry ice so that you can teach me some things about dry ice. Dry ice is frozen carbon dioxide. It is a gas found in our atmosphere. When we exhale carbon dioxide is the gas that we release and plants use it to make oxygen during photosynthesis. Another property of dry ice is that it is extremely cold (-109.3F). For this reason you may not touch the dry ice with your hands. You will wear goggles. Allow students to use various materials to investigate dry ice in order to find out more about it. Materials available: plastic and metal spoons, pennies, tweezers, cups of water, pipettes, zip lock bags, film canister bottoms, balloons, etc. Tell students one thing you would like them to discover is why it is called dry ice? If kids are having trouble getting started ask them: What happens if something metal comes into contact with dry ice? What happens if you try and put a drop of water on the dry ice? What happens if you put a piece in a cup of water? What happens if you put it in a closed container? How is this ice different than the ice our freezer makes?</p>
<p>EXPLAIN-</p> <p>-Facilitates a whole class discussion and summary of the selected, student generated approaches to solving the task and completing the goals above.</p>	<p>Allow students to share their experiences and learning outcomes with the class. Students will realize that dry ice NEVER melts, but turns directly into a gas. This is called sublime. Allow students to share evidence of this from experimenting as well as other learning that took place.</p> <p>Additional Activities: Boo Bubbles (See attached detailed notes) Dry Ice Cannons (See attached detailed notes) Fortune Teller Bubble (See attached detailed notes) Shrink Wrap Kids (See attached detailed notes)</p> <p>As a result of these learning experiences, is Science Spooky? Can you think of another word that better explains what science is?</p>

Activities are from Steve Spangler (My Favorite Scientist)

Here are the links to these activities on the web. They come with a description, easy to follow directions, explanation, and video!

Activity	Details
Halloween Pop	https://www.stevespanglerscience.com/lab/experiments/fire-water-balloon/
Boo Bubbles	https://www.stevespanglerscience.com/lab/experiments/boo-bubbles-dry-ice-science/
Dry Ice Cannons	https://www.stevespanglerscience.com/lab/experiments/air-cannon-smoke-ring-vortex-launcher/
I do this same activity but instead of garbage can I use plastic cups with hole cut out in the bottom. I secure zip lock bag with rubber band to the opening on the plastic cup. Add a few pieces of dry ice, and warm water..Each kid has a dry ice cannon.	
Fortune Teller Bubble	https://www.stevespanglerscience.com/blog/2015/10/13/dry-ice-crystal-ball/
Shrink Wrap Kids	https://www.stevespanglerscience.com/blog/2007/11/28/shrink-wrap-that-kid/