STEM Bertling Lesson Plan

**Date: 12/5/2016**

**Grade: Kinder**

**Grade: K- 2nd**

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| **Big Idea:**  | **Milk Rainbow**  |
| **Standard(s):**  | **Habits of Minds Standards****SK-2CS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works****SK-2CS2. Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.****SK-2CS3. Students will use tools and instruments for observing, measuring, and manipulating objects in scientific activities utilizing safe laboratory procedures.****SK-2CS4. Students will use ideas of system, model, change, and scale in exploring scientific and technological matters.****SK-2CS5. Students will communicate scientific ideas and activities clearly.****SK-2CS6. Students will question scientific claims and arguments effectively.** |
| **Essential Question(s):** | **What will happen when milk, food coloring and dish soap are placed mixed together?**  |
| **Vocabulary** | HydrophobicHydrophilic  |
| **Materials** | **Note paper** **Pencil** **Colored Pencils or Markers****Per table Groups****2 Bowel** **2 cups with 4oz of whole milk** **4 different food coloring droppers****4 Q-tips** **2 Small catchup cups with 1 oz of Dawn dish soap**  |
| **5 E’s****(Opening & Work Period** |

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| **Component & Materials** | **Description** | **Activity “ Ideas”** |
| **Engage** | Teacher explain to the class that they will be learning what it means to be hydrophobic or hydrophilic. Write down essential question.Students create Hypothesis “ I think the milk and food coloring will \_\_\_\_\_\_\_\_\_\_\_ because \_\_\_\_\_\_\_\_\_\_\_\_\_\_.” Students will use the above prompt to create hypothesis  | This phase of the 5 E's starts the process. An "engage" activity should do the following:1. Make connections between past and present learning experiences
2. Anticipate activities and focus students' thinking on the learning outcomes of current activities. Students should become mentally engaged in the concept, process, or skill to be learned.
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| **Explore** | Teacher plays video of Mr.B teaching the lesson.[www.dhstem.weebly.com](http://www.dhstem.weebly.com) Students follow along with instructions.Step 1: Put 1 drop of each different color of food coloring in the center of the bowel.Step 2: Place the Q-tip into the soap and roll it around till its completely covered.Step 3: Place the Q-tip into the center of the bowel Students write down observation. | **Explore:** This phase of the 5 E's provides students with a common base of experiences. They identify and develop concepts, processes, and skills. During this phase, students actively explore their environment or manipulate materials. |

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| **Explain** | Play video for explanation and write down notes.Hydrophobic: Fear of water. Pushes away from water.Hydrophilic: Love of water. Comes towards water. | **Explain:** This phase of the 5 E's helps students explain the concepts they have been exploring. They have opportunities to verbalize their conceptual understanding or to demonstrate new skills or behaviors. This phase also provides opportunities for teachers to introduce formal terms, definitions, and explanations for concepts, processes, skills, or behaviors. |
| **Elaborate** |  | **Elaborate:** This phase of the 5 E's extends students' conceptual understanding and allows them to practice skills and behaviors. Through new experiences, the learners develop deeper and broader understanding of major concepts, obtain more information about areas of interest, and refine their skills. |
| **Evaluate** | The video revisits essential question to and students write down answer to essential question.  | **Evaluate:** This phase of the 5 E's encourages learners to assess their understanding and abilities and lets teachers evaluate students' understanding of key concepts and skill development.  |
| **Closing**  | Clean Up  |