**Middle School STEM Science Lab/Activity Planner**

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| Name of Lab/Activity:Eggcell | Grade:7  |
| California Science Standard(s): (please copy and paste standards taught during this lesson)Students know the characteristics that distinguish plant cells from animal cells, including chloroplasts and cell walls |
| Common Core Science Reading and/or Writing Standard(s): (please copy and paste standards taught during this lesson) conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation |
| Learning Objective/Goal:Discover how a semi-permeable membrane works |
| Language Objective/Goal: (based on California Common Core Standards)Support claims with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating and understanding of the topic. |
| Next Generation Science Standards – ): (please copy and paste any of the 8 Science and Engineering standards taught during this lesson, as well as any Cross Cutting Concepts that apply) |
| Materials & Resources:Eggs, traditional vinegar, food coloring, salt water, corn syrup, kiwi, tomato, shampoo |
| Procedure: Place egg in traditional vinegar to decalcify. Students hypothesize what will happen when they place the egg in the different liquids. Then place softened egg in salt water, shampoo and corn syrup that have been colored different shades with the food coloring to differentiate. Liquids remain un-labeled so students can observe without knowing what the liquid is. Weigh daily for several days and record results on data table. Use data table to create graph on excel or word. Record in science journal daily observations including text with complete paragraphs, diagrams and labels. At end of the week students conclude their observations using the academic language discussed during the week. They are then given a list of fluids (including those used) with similar viscosities and try to identify which liquid were used and why. Wrap up discussion by identifying actual liquids and why each liquid had the results it did. Repeat all steps( except soaking in vinegar) with kiwi and tomato simultaneously with the egg. | Teaching Notes: (include timing)Same experiment can be done with eggs not soaked, soaked in standard vinegar and eggs soaked in concentrated vinegar |
| Math Connection (Including CCSS Math Practice(s):Using data tables and graphs | Teaching Notes: |
| Technology Used to Extend Learning: use excel or word to graph weight | Teaching Notes: students need to have learned this before this activity. |
| Formative Assessment: (please attach a copy)R.A.F.T.S. | Teaching Notes: |
| Strategies for EL & Special Needs Students (ELD CCSS: mind map for journal pre-write | Vocabulary: semi-permeable, cell membrane, absorb, osmosis,  |
| Alignment in science unit: (Brief description of lessons taught **prior to & after** this lab/activity)Prior to activity students learn about the basic structure of the cell, during they are learning osmosis, hypertonic and hypotonic, permeable membranes.  |
| Brief description of lessons taught **after** this lab/activity:Students learn about effects of permeable membranes and salt solution as it applies to fresh water variations flowing into deltas and estuaries. |
| Lab/Activity adapted from: (website, textbook, etc.)Prentice Hall California Life Science | Formative Assessment adapted from:6 +1 traits by Ruth Culham |
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| This lesson was developed by: |
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