

Date: December 19, 2017 (2:15-3:45 pm)

Lesson Plan: Floating Activity

Presenters: Dr. Carole Lee and Dr. Susan Nicholson-Dykstra

Stages	Procedure	Questions	Rationales in accordance with NGSS
Engage	<ul style="list-style-type: none">● Read the story – The circus ship● Guide students to think about the problem and the design	<ul style="list-style-type: none">● What is the problem?● How to solve the problem?	<ul style="list-style-type: none">● Integrate science with language arts● State the problem (first step in engineering design process)
Explore	<ul style="list-style-type: none">● Think about how to build the floating device● Budget the money● Work collaboratively to build the floating device	<ul style="list-style-type: none">● What is the plan?● How do students work toward their plan?● How do students work together?	<ul style="list-style-type: none">● Plan and Design● Allow students to work collaboratively
Explain	<ul style="list-style-type: none">● Explain the design and market the floating device by drawing the model on a poster paper and present to the class	<ul style="list-style-type: none">● What materials do the students choose?● What are their rationales of choosing those materials?	<ul style="list-style-type: none">● Think about the properties of materials and their applications to daily life● Think about the principles of floatation
Extension (depend on the time)	<ul style="list-style-type: none">● Use clay to build a device that can hold as many pennies as possible	<ul style="list-style-type: none">● What is the shape of the device?● How can students improve their device to hold as many pennies as possible?	<ul style="list-style-type: none">● Introduce the science concepts of mass, volume, density, surface area, sinking and floating
Evaluation	<ul style="list-style-type: none">● Assess students by their models built and the delivery of their presentation	<ul style="list-style-type: none">● How much money did the student spend in building the model?● What are some other ways to improve the model?	<ul style="list-style-type: none">● Develop students' creativity● Integrate art with science● Develop student's presentation skills● Illustrate one way of summative assessment