

Name: \_\_\_\_\_

## Buoyant Boats

**Introduction:** *The United States Navy is looking for a few good engineers who can build a new fleet of efficient ocean-faring vessels, and they are enlisting you and your team of highly skilled engineers! As an engineer, it will be your duty to investigate what makes an efficient, speedy and buoyant boat. Happy sailing!!!*

**Essential Questions:** *How do engineers use science and engineering to design efficient boats?*

**Required Steps and Tentative Due Dates:** *You and your group will need to choose and complete the following tasks during your work periods. The lab report is due on **Friday June 12.***

Group Tasks		
Task	Due	Completed?
Investigation Design Diagram (IDD)		
Boat Prototype Document		
Building Experimental Boats		
Data Collection		
Determining Speed of Boat		
Chart Paper Write Up	6/5	
Racing Boat Proposal		
Build Racing Boat	6/16	
<b>RACE DAY!!!!</b>	6/17	

Individual Tasks: Lab Report		
Task	Due	Completed?
Title		
Question		
IV, DV, and Constant Variables		
Background Research		
Hypothesis		
Materials & Procedure	6/8	
Data Table	6/10	
Graph	6/10	
Conclusion	6/11	



## Rubric:

Outcomes	NY	MS	ES
<p><u>Communicate</u> – <i>Make ideas and information understood, mindful of audience, purpose, and setting.</i></p>		<p><b><i>While writing my background research section:</i></b></p> <p>__ I have used an organizational structure that is easy for the reader to follow</p> <p>__ I have used appropriate and relevant scientific language</p>	<p>MS Criteria AND</p> <p>__ I have used highly engaging and appropriate terms and language throughout my writing.</p> <p>__ My sentences, paragraphs, and language is varied and engages the reader in a meaningful manner</p>
<p><u>Conclude</u> - <i>Infer meanings, analyze information and develop valid ideas based on evidence and analysis.</i></p>		<p>__ <i>I am able to correctly interpret the relationship between variables in my graph</i></p> <p>__ <i>I use data from my graph to support my answer</i></p> <p>__ <i>I use cited background research to support my claim</i></p>	<p><b>MS Criteria AND</b></p> <p>__ <i>My conclusion is more nuanced (i.e. I see multiple relationships) and I have supporting data</i></p> <p style="text-align: center;">OR</p> <p>__ <i>My conclusion is supported by data and previous knowledge gained from other lessons</i></p> <p style="text-align: center;">OR</p> <p>__ <i>I have embedded higher-level science vocabulary, language, and writing techniques</i></p>
<p><u>Discern</u> - <i>View, read, and listen with focused attention to what matters.</i></p>		<p>__ I demonstrate an understanding of the text by summarizing how the textual evidence relates to my investigation; however, the evidence I choose could be stronger</p>	<p>__ I demonstrate a strong understanding of the text by providing powerful quotes and information that relates directly to my investigation.</p>
<p><u>Investigate</u> - <i>Ask and refine a researchable question, and then gather appropriate information to complete the inquiry.</i></p>		<p>__ I asked a question that can be answered through an investigation</p> <p>__ I have written a hypothesis using the <i>If...then...because</i> format</p> <p>__ <i>My “because” statement is a researched fact that has been properly cited</i></p>	<p><b>MS Criteria AND</b></p> <p>__ <i>I have embedded science vocabulary, language, and writing techniques that explain the direct connection between my question, hypothesis, and scientific information</i></p>
<p><u>Plan</u> - <i>Make deliberate plans, reflect, and persevere in order to achieve goals.</i></p>	<p>__ During work periods, I am often off task</p> <p>__ I have missed deadlines</p>	<p>__ During work periods, I am on task most of the time, but may need some teacher redirection</p> <p>__ I have met ALL of my deadlines</p>	<p>__ During work times; I am on task and needs no teacher redirection.</p> <p>__ I have met ALL of my deadlines</p>