

**% Copper in Brass Lab Peer Grading Rubric**

Whose lab report are you grading? \_\_\_\_\_

Grader's Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

\*\*\*Take off at least one point for each box that is not checked in the table below.

<u>Requirements</u>	<u>Earned Points</u>	<u>Possible Points</u>	<u>Comments</u>
<b>Heading</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Date of experiment</li> <li><input type="checkbox"/> Lab partner(s)</li> <li><input type="checkbox"/> Experiment Title</li> </ul>		3	
<b>Pre-Lab</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Purpose</li> <li><input type="checkbox"/> Safety – must include dangers associated with HNO<sub>3</sub></li> <li><input type="checkbox"/> Day 3 Protocol detailed enough to follow</li> </ul>		3	
<b>Observations</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> 2-3 complete sentences</li> </ul> Clearly describes the following: <ul style="list-style-type: none"> <li><input type="checkbox"/> HNO<sub>3</sub> + brass → green solution</li> <li><input type="checkbox"/> Bubbling; reddish brown gas produced</li> <li><input type="checkbox"/> Resulting solution is blue</li> <li><input type="checkbox"/> What did the student do to cause the observed effect?</li> <li><input type="checkbox"/> Correct spelling and grammar</li> </ul>		6	
<b>Data</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Absorbance vs. Wavelength Data Table (-1/2 point if no title)</li> <li><input type="checkbox"/> Absorbance vs. Wavelength Graph (-1/2 point if no title)</li> <li><input type="checkbox"/> Concentration vs. Absorbance Data Table (-1/2 pt if no title)</li> <li><input type="checkbox"/> Conc. vs. Absorbance Calibration Curve (-1/2 pt no title)</li> <li><input type="checkbox"/> Slope of the Cu<sup>+2</sup> calibration curve</li> <li><input type="checkbox"/> Mass of brass sample</li> <li><input type="checkbox"/> Volume of dissolved brass solution</li> <li><input type="checkbox"/> Sample absorbance</li> <li><input type="checkbox"/> All data clearly labeled</li> </ul>		9	
<b>Data Processing</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Volume of Standardized Solutions               <ul style="list-style-type: none"> <li>➤ <math>M_1V_1 = M_2V_2</math> (1 point)</li> <li>➤ Substitution (3 points)</li> <li>➤ Boxed answer with mL units (3 points)</li> </ul> </li> <li><input type="checkbox"/> Concentration of Copper (3 points)               <ul style="list-style-type: none"> <li>➤ (Sample Abs) / (slope of calibration curve)</li> <li>➤ Substitution</li> <li>➤ Boxed answer with Molarity unit</li> </ul> </li> </ul>		17	

<ul style="list-style-type: none"> <li>❑ Moles of Copper (3 points) <ul style="list-style-type: none"> <li>➢ (Volume of sample) (Copper concentration)</li> <li>➢ Substitution</li> <li>➢ Boxed answer with mole unit</li> </ul> </li> <li>❑ % Copper (3 points) <ul style="list-style-type: none"> <li>➢ <math>[(\text{Moles Cu}) (\text{Molar mass Cu}) / (\text{grams sample})] \times 100</math></li> <li>➢ Substitution</li> <li>➢ Boxed answer with %</li> </ul> </li> <li>❑ All calculations are clearly labeled and easy to understand</li> </ul>			
<p><b>Conclusion and Evaluation</b></p> <ul style="list-style-type: none"> <li>❑ Complete sentences</li> <li>❑ Correct spelling and grammar</li> </ul> <p>Paragraph 1:</p> <ul style="list-style-type: none"> <li>❑ Appropriate topic sentence referring to the purpose</li> <li>❑ <b>CLAIM:</b> States the % Cu in brass calculated from lab data</li> <li>❑ <b>EVIDENCE:</b></li> <li>❑ Measured unique absorbance of each metal cation found in brass to determine appropriate wavelength</li> <li>❑ Constructed a calibration curve of known concentrations</li> <li>❑ <b>REASONING:</b> Use of spectrophotometry, Beer's Law</li> </ul> <p>Paragraph 2: Brass sample is ~70% Cu</p> <ul style="list-style-type: none"> <li>❑ Limitations or sources of error</li> <li>❑ How would errors affect the results?</li> <li>❑ How could the results be improved?</li> <li>❑ Propose further experimentation</li> </ul>		12	
<p><b>Presentation</b></p> <ul style="list-style-type: none"> <li>❑ Well-organized, sections clearly labeled</li> <li>❑ Neat, legible writing</li> <li>❑ Table of contents includes information</li> <li>❑ Page numbers included</li> <li>❑ Lab is written in ink</li> <li>❑ Errors properly crossed out, no white out</li> <li>❑ Writes on one side of the page only</li> </ul>		5	

Total points earned: \_\_\_\_\_ / 55

Write two things the student did well in this lab report:

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Write two things that the student could do to improve the lab report:

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