Test Tube Challenge

Objective
Your group must prepare three different, distinct layers of sugar-water solution, similar to the diagram below. Each layer must be liquid in phase. There cannot be a phase of pure sugar. There also cannot be a layer of pure food coloring due to the expense of the product.

Available Materials
- Sugar
- Food coloring
- Water
- Test tube
- Pipette/eye dropper
- Beakers
- Metal scoop
- Balance

Safety
- Always wear safety goggles and lab apron when handling chemicals in the lab.
- Wash your hands thoroughly before leaving the lab.
- Follow your teacher’s instructions for clean-up of materials.
- Food coloring stains skin and clothes, so be cautious when using it.
- Do not consume lab solutions, even if they’re otherwise edible products.
- Food in the lab should be considered a chemical not for consumption.

Procedure
1. As a group create a detailed plan of your procedure, including quantities of any ingredients needed before proceeding.
2. If your plan does not produce the expected results, include revisions to your plan below.
3. Organize and record this information below:
Data
- Your group must show your teacher the final product.
- Sketch a diagram of your final test tube below.
- Explain the composition of the solution in each layer.

<table>
<thead>
<tr>
<th>Sketch</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Green (top) Layer</td>
</tr>
<tr>
<td></td>
<td>Blue (middle) Layer</td>
</tr>
<tr>
<td></td>
<td>Red (bottom) Layer</td>
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</tbody>
</table>

Conclusion
Summarize your procedure and observations, making sure to state the volumes and masses used in your experiment. Be sure to specifically mention density and concentration. Explain any challenges you faced or revisions that were necessary.