Synthesis of Copper Azurite Pigment
Dr. Slotsky Chemistry I

**GOAL:** Produce a highly-colored, insoluble salt of Cu$^{+2}$ ion, for use in painting.

**REACTION:**

\[3 \text{CuSO}_4 + 3 \text{Na}_2\text{CO}_3 + \text{H}_2\text{O} \rightarrow \text{Cu}_3(\text{CO}_3)_2(\text{OH})_2 + 3 \text{Na}_2\text{SO}_4 + \text{CO}_2\]

**Procedure:**

Weigh out 6 grams of sodium carbonate (Na$_2$CO$_3$) into a weighing boat, following the usual procedure – balance an empty weighing boat using the gram slider of a triple-beam scale, add 6 grams to the scale slider, and add sodium carbonate until the scale balances again.

Weigh out 5 grams of copper (II) sulfate into another weighing boat, following the same procedure.

Place the sodium carbonate in a beaker and add 50 mL of water (measured using a graduated cylinder). Stir the mixture until the carbonate completely dissolves. If it does not dissolve completely after a few minutes of stirring, filter the solution into another beaker using a funnel and filter paper.

Place the copper (II) sulfate in a new beaker and add 40 mL of water. Stir the mixture to dissolve as completely as you can. Using a new piece of filter paper, filter the copper (II) sulfate solution INTO the sodium carbonate solution.

1) What do you observe happening when the solutions mix? Is this a physical or a chemical change?

After the reaction is complete, collect the solid product on a piece of fresh filter paper. Squeeze it dry between pads of paper towels, and leave the product to dry overnight on the filter paper.

2) What is the appearance of your product?

3) Is your product soluble in water or not? Explain why you think so.

4) How does solubility relate to the intended use of this substance as a pigment?