INQUIRY LAB Z

WHAT IS UP WITH ALL OF THESE WHITE POWDERS?

Note: It is not appropriate for you to look-up how to do this lab online or in books. You should be able to simply consult your class notes and your textbook. It is also inappropriate to consult the help of anyone who is not a member of your lab group.

Purpose:

What you are going to do? Determine the identity of all of the samples of white, powdery solids.
How are you going to do it? Well, that is the entire purpose of the lab, isn't it?

The Unknowns (these will be randomly labeled A-H):

Ammonium nitrate	Calcium carbonate	Sodium acetate	Barium nitrate
Glucose	Magnesium oxide	Sodium sulfate	Potassium iodide

Theory:

You will be given eight beakers of white solids. You will develop a flow chart type procedure that will systematically, step by step, test for certain characteristics. These characteristics will reveal the identity of the eight solids. This flowchart should identify the procedural test performed and what it reveals or fails to reveal.

Equipment/Materials Provided:

magnifying glass	thermometer	crucibles	laboratory tongs
beaker tongs	beakers	test tube clamps	ring stand
metal ring	flasks	evaporating dish	well plates
centrifuge	test tubes	pipettes	pipetter
stirring rods	milligram balance	mini-well plates	Buchner funnel
filter paper	drying oven	mortar/pestle	graduated cylinders
scupula	spatula	Petri dishes	distilled water
burets	separatory funnel	plastic funnel	pH paper
conductivity tester	wire loop	Bunsen burner	splints
Benedict's Reagent	0.100 M NaOH	0.100 M HCl	0.100 M $AgNO_3$

Preparation Week:

You will be given this document three weeks prior to the week of 2/26/18 through 3/02/18 (LAB A). Take this time to get together with your lab partners and create a plan to address the problem outlined above.

Week 1 (2/12/18 through 2/16/18):

Report to 5213 this week for lab. Here you will present your tentative procedure to your instructor. You must also include a data table for all critical measurements (qualitative or quantitative) and display how you will use this data, logically. This will be somewhat of a rough draft. ***Please TYPE the procedure for legibility.Include a flowchart with your procedure.*** Do not write your finalized procedure for Week 2 in your lab notebook until it is completely done and completely vetted. In lab this week you will receive suggestions to better meet your goals and to fine-tune your procedure.

Week 2 (2/26/18 through 3/02/18):

Come to lab with a finalized and formal purpose, illustrated procedure, flow chart and safety/physical data and a data table for your experiment. Perform your experiment. Find out the actual identity of the eight solids. Complete the lab (create an expanded conclusion that highlights the overall procedural steps leading to the identity of the unknowns, error analysis, post-lab questions, etc.).

Post Lab Questions:

1. If you were able to perform this lab again, what is the largest change you would make to your procedure? Justify your answer.

2. What equipment could you use to improve your experiment that was not available on the list? Justify your choice.
3. Do you think that you benefited from the opportunity of designing and performing this lab? Was it worth a 2 week commitment?