Macromolecules Teacher Instructions

Materials:

- Copies of student handouts
- Benedict's qualitative solution
- Lugol's iodine
- Biuret test solution
- Sudan III solution
- Test tube holder
- 4 test tubes
- Thermometer
- Hot water bath (hot plate, 500-1000 mL beaker, test tube tongs)
- 250-300 mL beaker
- Pipettes for each tests and sample
- Simulated stomach content- Blend together a can of unsweetened corn, cup of pasta, half cup of vegetable oil, and a source of protein such as an egg yolk.
- Positive control groups
    - 1 test tube rack
    - 4 test tubes with water
        - Simple sugar sample tube- dextrose or glucose
        - Complex sugar (starch) sample tube- cornstarch
        - Protein sample tube- egg yolk
        - Lipid sample tube- vegetable oil
- Negative control groups
    - 1 test tube rack
    - 4 test tubes with just water
- Make simulated stomach content and pour about 20 mL into a beaker for each group and fill the rest of the beaker with distilled water to dilute the sample.
- Set up five testing stations
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    - Station 1: Simple sugar test
        - Benedict's solution
        - Pipette
        - Hot water bath
        - Test tube tongs
    - Station 2: Complex Sugar (Starch) Test- Lugol's Iodine
        - Lugol's iodine
        - pipette
    - Station 3:Protein Test- Biuret Solution
        - Biuret solution
    - Station 4: Lipid Test- Sudan III Solution
        - Beaker with distilled water
        - 2 pipette

        - Sudan III solution
    - Station 5: Control Groups
        - 1 test tube rack with the four negative result examples
        - 1 test tube rack with the four positive result examples
- Assign groups
- Go over safety procedures
- Go over how to use equipment if necessary
- Monitor students and ask questions about results to verify that students understand the activity and their results