Planning your Winogradsky Columns

Team:

Experimental Options

A. Inorganic Carbon (IC):
    1. 0.5 g bicarbonate ($NaHCO_3$) → bottom (B) or mixed in (M)
    2. none
B. Organic Carbon (OC):
    1. 0.5 g mixed organics (Yeast Extract) → B or M
    2. 0.5 g carbohydrate (Cellulose) → B or M
    3. 0.5 g shredded paper → B or M
    4. none
C. Sulfur (S):
    1. 1.0 g sulfate ($MgSO_4$) → B or M
    2. 0.2 g elemental sulfur (S) → B or M
    3. none
D. Macronutrients (MN), always mixed in:
    1. 3mL nitrogen (1M NH_4 solution) AND 3mL phosphate (100mM PO_4 solution)
    2. 3mL N only
    3. 3mL P only
    4. none
E. Light (L):
    1. yes
    2. no (aluminum wrapped)
F. Other Additions – iron (Fe):
    1. 1.0 g iron hydroxide (FeOOH) → B or M
    2. none

The Plan
All teams have the same condition 1 (but likely very different source organisms). Remember experimental design best practices: all conditions must have at least one previous condition that has only a single difference in media. For example, condition 3 must be such that it has only a single difference from either condition 1 or condition 2. This will make it possible to evaluate the impact of a single component.

	Condition 1	**Condition 2**	**Condition 3**	**Condition 4**	**Condition 5**
A: IC	bicarbonate **B** ☐	B / M ☐	B / M ☐	B / M ☐	B / M ☐
B: OC	cellulose **B** ☐	B / M ☐	B / M ☐	B / M ☐	B / M ☐
C: S	sulfate **M** ☐	B / M ☐	B / M ☐	B / M ☐	B / M ☐
D: MN	N + P **M** ☐	**M** ☐	**M** ☐	**M** ☐	**M** ☐
E: Light	yes				
F: Fe	none	B / M ☐	B / M ☐	B / M ☐	B / M ☐