Pinkerton Research Lab

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2026 Lab Olympics: Event Descriptions **4 Aug 2026**

Event 1: Standard Curve Dilution (1 per team)
- Create a 2x dilution series of fluorescent NPs on a 96-well plate for a fluorescence standard curve within 2 minutes. Compare against a control series and score for regression and R^2.

Event 2: Blindfolded Pipette Setting (1 per team)
- Set a p1000 pipette to a specific volume within 30 s while blindfolded. A p1000 pipette is set to 200 µL and the opposing team chooses the specific value between 300-700 µL.

Event 3: Blind Weigh, Blind Pour (2 per team)
- Player 1: Without a scale, weigh 1 mol of NaCl within 30 s. Players will start with 100 g of NaCl in a separate, pre-tared weighboat.
- Player 2: Pour a specified amount of water within a 20-mL scintillation vial. Players will start with 100 mL of water in a 250-mL round bottom flask.

Event 4: Mystery NP (2 per team, 1 ans)
- Teams must guess the size and PDI of a randomized NP formulation before and after NP synthesis *via* Flash NanoPrecipitation.

Event 5: Memory 96 (2 per team)
- Memorize a pattern of wells consisting of two colored solutions within 2 minutes. Recreate the pattern within 2 minutes.

Event 6: Rubber Septa Challenge (2 per team)
- Wrap round bottom flasks and erlenmeyer flasks with rubber septa as fast as you can! Don't break the glassware.

Event 7: Relay Race (Team)
- One player at a time: Players must: **1)** don PPE (lab coat, safety glasses, nitrile gloves), **2)** fully restock one 1000 µL pipette tip box and label with tape and initials, **3)** set a p1000 pipette to min or max setting, **4)** wrap 5 scintillation vials with aluminum foil, and **5)** remove PPE before tagging in the next player.

Tie-breaker / Bonus Event: Parafilm Stretch

Challenge Round: Random! Blindfolded Pipette Setting within 30 seconds

Materials & Methods for Pinkie Lab Olympics

Event 1: Standard Curve Dilution

- **Standard Curve Dilution** with pre-prepped CC in triplicate
- (3) 96-well clear bottom plate
- (3) 0.5 mL aliquots of DiO-NP sample with known concentration
- (3) p200 micropipette
- (3) p200 pipette tip boxes
- (3) 20-mL scintillation vials filled with water

Event 2: Blindfolded Pipette Setting

- (2) p1000
- (2) pieces of paper with the specific value

Event 3: Blind Weigh, Blind Pour

- (2) pre-tared weigh boats
- (2) weigh boats containing 100 g of NaCl each
- (2) empty scintillation vials
- (2) 250-mL round bottom flasks with 100 mL MilliQ water

Event 4: Mystery NP

- **Mystery NP Formulation** sheet, randomized, printed out
- FNP Mixer
- Pre-weighed PEG-PLA BCP, PLA 10-18 kDa or a-tocopherol depending on formulation
- THF, acetone

Event 5: Memory 96

- (4) scintillation vials with solutions of red & blue dye in water
- (6) 96-well clear bottom plates
- (4) p200 pipettes
- (4) 200 uL pipette tip boxes

Event 6: Rubber Septa Challenge

- (20) 24/40 & (8) 14/20 rubber septa
- (6) 24/40 RBFs, (4) 14/20 RBFs, (4) 24/40 erlenmeyer flasks

Event 7: Relay Race

- (8) 1000 uL empty pipette tip boxes
- (2) 1000 uL pipette tip bags in bulk
- (2) 1000 uL & (2) 200 uL pipettes
- (1) empty 20-mL scintillation vial tray & (40) 20-mL scintillation vials
- (40) pre-cut pieces of aluminum foil
- (1) aluminum foil pre-wrapped scintillation vial sample