Conducting a complete Blood Count (CBC)

# Set-up and Key

* RBC – Cinnamon Imperials/Red Hots candies (heart-shaped if available, not gummies)
* WBC – Dried Lima Beans (small)
* Platelets – Lentils (dark)

|  | | Set up | | |
| --- | --- | --- | --- | --- |
|  | | 1. Add in all blood cells. 2. Fill the tubes with water up to the 50ml mark, except Stations 2 and 4. These should be filled to a noticeably lower volume, at your discretion. | | |
| **Station #** | **Simulated Condition** | **RBC** | **WBC** | **Platelets** |
| **1** | Control/Normal Sample | 10 | 13 | 2 “splashes” |
| **2\*** | Infection + dehydration  (High WBC, Low Plasma) | 10 | 30 | 2 “splashes” |
| **3** | Thrombocytosis  (High Platelets) | 10 | 13 | 4 “splashes” |
| **4** | Polycythemia + dehydration  (High RBC, Low Plasma) | 20 | 13 | 2 “splashes” |
| **5** | Anemia  (Low RBC) | 5 | 13 | 2 “splashes” |
| **6** | Leukopenia  (Low WBC) | 10 | 5 | 2 “splashes” |
| **7** | Thrombocytopenia  (Low Platelets) | 10 | 13 | 1 “splash” |
| **8\*** | Leukemia  (High WBC) | 10 | 20 | 2 “splashes” |
| **9** | Sickle Cell Anemia  (Low RBC, Sickle-Shaped) | 5-7  Cut in half and trim to make shape. | 13 | 2 “splashes” |

\*Stations 2 & 8 can be difficult for students to distinguish, so it is acceptable for their answers to be reversed. This is a good point for class discussion about the difficulty of making a diagnosis from a single test/sample as well.