

Materials (Per Person):

- Powders:
 - Sample 1: Sodium Bicarbonate
 - Sample 2: Ammonium Chloride
 - Sample 3: Potassium Chloride
 - Sample 4: Calcium Sulfate
 - Sample 5: Calcium Carbonate
 - Sample 6: Boric Acid
 - Sample A: Potassium Chloride
- HCl
- NaOH
- Distilled Water
- A Lighter + Flame loop
- pH Paper
- Stirrers
- A Well Plate
- 1 Marker
- Pieces of Filter Paper
- A Paper Cup
- Some tape

Answer Key:

1. Sodium Bicarbonate, NaHCO₃, Sibi
2. Ammonium Chloride, NH₄Cl, Kevin
3. Potassium Chloride, KCl, Warko
4. Calcium Sulfate, CaSO₄, Gobert
5. Calcium Carbonate, CaCO₃, Yoshi
6. Boric Acid, HBr, Arkansas,
7. Potassium Chloride, Warko
8. CuSO₄ and sodium citrate, used to detect reducing sugars
 - a. Aldehyde + Cu²⁺ → Carboxylic Acid + Cu⁺_(precipitate)
9. CaCO₃ + 2HCl → CaCl₂ + CO₂ + H₂O
10. NH₄Cl + NaOH → NH₃ + H₂O + NaCl
11. KCl, sodium thiopental, pancuronium bromide
12. PETE
13. PVC
14. PS
15. PC

16. LDPE
17. HDPE
18. Warko
19. Addition polymerization results in homo-chain polymers whereas condensation polymerization results in hetero-chain polymers. The most significant difference is that in addition polymers there is no loss of atom. But in condensation reaction, there is a loss of a molecule of water, ammonia etc as a by-product.
20. The plastic's chemical makeup mimics that of acetone, following the like-dissolves-like rule
21. 1, 3, 6, 7, 2, 4, 5, 7
22. Cotton, Sibi
23. Polyester, Warko
24. Silk, Yoshi
25. Wool, Gobert
26. Spandex, Kevin
27. Warko
- 28.--
29. Burn Test
30. Synthetic melts, plant-based burns w/paper smell, animal-based burns w/burnt hair smell
31. Plastic/petrol-based
- 32.

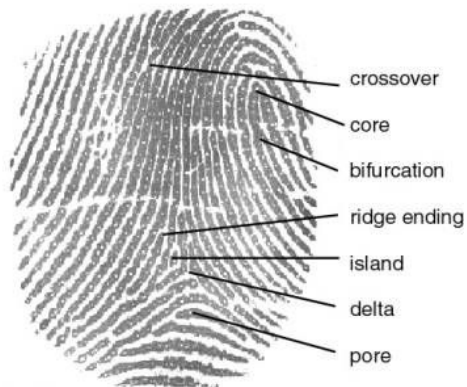


Figure 1

33. Ninhydrin
34. Iodine Fuming
35. Silver nitrate reacts with the chlorides in bodily secretions (oil, sweat) to make latent prints visible
36. Latent prints are invisible, patent prints are visible
37. Automated Fingerprint Identification System
38. Radial Loop, Warko

39. Polymerase Chain Reaction
40. Denaturation, Annealing, Elongation
41. DNA Polymerase
42. Thermus Aquaticus; it is withstanding of high temperatures, so the enzyme won't denature during the annealing process
43. To create multiple copies of DNA to make analysis easier
44. Certain antibodies react or don't react with the antigens presented on the blood cells, allowing us to know which antigens the blood has and therefore revealing the blood type
45. A antigens, and Anti-B antibodies, no Rh factor
46. Multiple allele gene
47. Rhesus (Rh) Factor
48. AB, A and B
49. Warko
50. See attached → look for appropriate markings of starting point, proper technique
51. Methane, Ethane, Propane, Butane, Pentane, Hexane
52. Ionization, Acceleration, Deflection, Detection
53. An M+2 peak will occur

Analysis:

Answers may vary: Warko

- Look for references to the bios
- Look for plausible further testing suggestions
- Consideration of all presented evidence