Impressions and Toolmarks

1. How does footwear become individualized?
2. What can foot impression provide to an investigation?
3. How are latent prints made visible?
4. Name the different types of teeth and their location in the mouth including how you can determine age from teeth.
5. Draw a picture of a tooth and label all structure.
6. Describe the difference between the following tool marks, including how they are made: indentation, cutting, abrasion
7. Describe how tool marks are dealt with at a crime scene.
8. Define and give examples of latent print, patent print and plastic print
9. Describe the parts of a tire.
10. Define track width.

Blood

11. Define the following and give an example: erythrocyte, leukocyte, thrombocyte, antigen, antibody, agglutination, spines, satellites, passive blood drops
12. Name the four blood types and give the percentage of each found in the US. Also give the percentage of being Rh+ or Rh-
13. What blood type if the universal donor? Universal acceptor?
14. Describe how a blood splash can provide information about what direction the blood came from.
15. Describe how the Kastle-Meyer test is performed.
16. What is the job of the white blood cell? The red blood cell?
17. What cells have the antigens that determine the blood type? What is produced in the plasma because of this?
18. Describe how the point of origin is found and what information it provides. What about the area of convergence?
19. What can be learned from blood drops?
20. Describe how luminol works.
21. Describe the shape of the blood drop at each of the following angles: 90, 45, 30, 10
22. Describe the shape of an arterial spurt, a blood trail, a blood pool, a walking pattern, a running pattern and a high velocity impact.
23. What blood cells have DNA?
24. After confirming a stain is blood what is the next step?

DNA

25. Describe the difference between individual and class evidence. Give examples of each. Which is DNA?
26. What is the difference between unencoded (junk) DNA and coded DNA?
27. What are the nitrogen bases in DNA and how do they bond to each other?
28. Describe mitochondrial DNA and how it is used to for forensics.
29. Describe how radioactive probes are used in DNA processes.
30. Describe how electrophoresis is done and what the results mean in regards to the bands that are made. Include which bands travel the fastest.
31. If a person only shows one band for a genotype what does this indicate?
32. What is the role of DNA polymerase?
33. How is DNA extracted from the nucleus and why is this important?
34. Below is a DNA molecule. You have just been given the restriction enzyme *Bam*H I, which recognizes the sequence GGATCC How many DNA fragments would you end up with if it is exposed to this enzyme?

    CCTAGG

    CATGTGAT**GGATCC**AGAGTCATTCCGGTACGGGATCCAGTTACGGATCCAGTTCCC

    GTACACTACCTAGGTCTCAGTAAGGCCATGCCCTAGGTCAATGCCTAGGTCAAGGG
35. Use the following data table to determine the genotype of Mr. Cash and answer the questions below.

Person	D3	VWA	FGA	AMEL	D8
Mr. Cash	17, 13	17, 20	21, 19	X,Y	11, 12
Mrs. Cash	15,18	13, 17	21,27	X	14
Joey Cash	15,17	17	19,27	X,Y	11,14
Amelia Cash	13, 18	13,17	21	X	12,14
Stefani Cash	13, 15	17,20	21,27	X	11,14

36. What genotype could be a possible child of Mr. Cash with another woman?

37. Calculate the frequency of a person having the genotype below using the frequencies given below. Use your Reading DNA profiles paper to get the known frequencies.

D3 13, 15 **VWA** 15 **FGA** 20, 24

Bones

38. If you fail to eat enough calcium what will happen?
39. What is the role of osteoclasts in bone?
40. How many bones are found in a baby? In an adult?
41. Define including how they are used: cartilage, tendons, ligaments
42. Describe how bone deterioration can be slowed.
43. What is osteobiography and what is it used for?
44. How does a man's skeleton compare to a women's skeleton?
45. Describe how the pelvis is used to determine sex.
46. What kind of DNA is found in the bone?
47. Describe how the long bones can be used to determine age. Include the epiphysis.
48. Describe how the skull is used to determine sex and age.
49. Describe how teeth can be used to determine age of a person.
50. Describe how skeletal trauma can be used.
51. Draw a picture of an osteon (Haverisan System) and label all the parts.
52. Be able to label the major bones of the skeleton.
53. How can you tell is a bone is from an adult or a child?

Drugs and Toxicology

54. Define toxicology, controlled substances, acute and chronic poisoning and give an example of each.
55. What are commonly used poisons?
56. Describe the features including affects and how death can occur from abusing hallucinogens. Include examples and how these drugs are made and any medical uses for these drugs.
57. Describe the features including affects and how death can occur from abusing narcotics. Include examples and how these drugs are made and any medical uses for these drugs.
58. Describe the features including affects and how death can occur from abusing stimulants. Include examples and how these drugs are made and any medical uses for these drugs.
59. Describe the features including affects and how death can occur from abusing anabolic steroids. Include examples and how these drugs are made and any medical uses for these drugs.
60. Describe the features including affects and how death can occur from abusing depressants. Include examples and how these drugs are made and any medical uses for these drugs.
61. Describe the features including affects and how death can occur from abusing bacterial toxins. Include examples and how these drugs are made and any medical uses for these drugs.
62. What is botulism, what effects does it cause, how is it made?
63. What happens when someone is exposed to anthrax?
64. How is ricin made?
65. What alcohol is in drinking alcohols? What are the effects of alcohol?

Accident Investigation

66. What are the 5 levels of accident investigation? What happens at each level?
67. How does the coefficient of friction change with different surfaces?
68. What is an example of Newton's Third Law of Motion as applied to accident investigation?
69. What are skid marks? How are they created?
70. What speed was a car traveling when beginning to brake, if it made skid marks 43 feet in length on a gravel road with a coefficient of friction of 0.40.
71. What are yaw marks? How are they created?
72. Calculate the speed when the brakes were applied of a car that made yaw marks with a radius of 167 feet on an asphalt road with a coefficient of friction of 0.90.