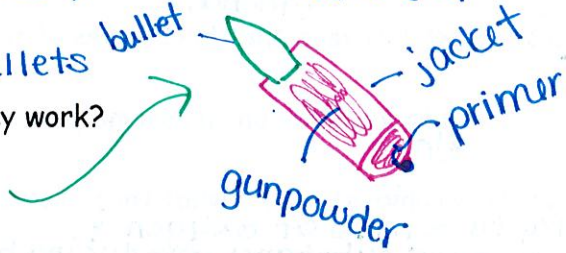
Key

Firearms, Tool Marks, and Other Impressions Review

1. What is rifling on a gun and what is its purpose? spiral patterns of lands & grooves in the barrel of the gun, to better aim the bullet so it flies straight
2. What are lands and grooves? raised parts, lowered parts
3. What is caliber? How is it measured (both US and other countries)? diameter of the cartridge, in hundreths of an inch or mm.
4. What are striations? How are they produced? marks on a bullet, by the rifling in the gun barrel as it passes through the gun
5. What are pistols? Handguns - 1. semiautomatics 2. revolvers
6. Describe the differences between revolvers and semiautomatics? revolver - needs to be cocked, cylinder turns, fire 1 bullet at a time w/o recocking; semiautomatic - fire ~~more than~~ 1 bullet w/o recocking, bullets stored in a magazine, shoots 1 bullet at a time
7. What are long guns? 1. rifles 2. shotguns > need 2 hands to fire
8. How does a shotgun differ from a rifle? fire shot or slugs, fire bullets
9. What are the parts of a gun and how do they work?
10. Describe all the parts of a bullet and casing.



11. What parts of a firearm leave impressions on a cartridge case that constitute individual characteristics of that weapon? firing pin, extractor, breech face
12. What is GSR? What factor does distance have on GSR on a victim? gun shot residue, the farther away the gun is, the more spread out the GSR is
13. How is a suspect tested for GSR? swabbed b/w index finger & thumb, tested for unburned nitrates from GSR & primer residue (Ba, Sb, Pb)
14. How is a bullet's trajectory calculated? distance above horizion = (tan ∠) × distance from gun to victim
15. What are types of tool marks and how are they made? indentions, abrasions (scratches), cutting marks
16. How does the criminalist record a tool mark for comparison when removal of the original tool mark is impractical? make a cast w/ dental plaster
17. Why must the crime-scene investigator never attempt to fit a suspect tool into a tool mark? might damage the original tool mark
18. What is the first step that must be taken before moving or handling an impression at a crime scene? pictures w/ rulers
19. ~~X~~ Name two procedures used to preserve impressions that cannot be submitted to the laboratory.
20. What are the types of impressions? patent impression - visible, 2-D in dirt, dust, or blood, etc
latent - hidden, brought out by UV light, powder or chemical developers
Plastics - 3D, in soft materials, lost easily

21. Distinguish between the following measurements on a vehicle: track width, wheelbase, and turning diameter.
distance from center of left to the center of right tire
center of front tire to center of back tire
↳ measure of how tight a circle can be driven

22. What are the characteristics of shoes that can be used to match a shoeprint?
size, width, tread pattern, wearing patterns, holes or body cuts, weight, directions surface walked on, toes point

23. She prints can be class evidence or individual evidence. What makes a shoe print class evidence? Be specific. What makes a shoe print individual evidence?
↳ size, tread, brand
↳ tread pattern w/marks

24. What are some things that can be determined about a person based on a set of shoe prints?
weight, how active they are, walking habits, running or walking, limp

25. Explain how you would make a casting of a shoeprint left in the dirt.
spray w/hairspray, fill dental plaster, let dry

26. What are the three categories of tire marks and how are they made?
- skid - locks tires when braking
yaw - drift, skidding sideways
scrub - produced by damanged/overloaded tires during/right after impact show area of impact

shows distance brakes applied can calculate speed

27. Why can dental impressions be useful forensically if a bite mark is found?
individual evidence, can be compared to 1 person

28. ~~Distinguish between the three types of tool marks and how they are made.~~

29. Since tools are made on an assembly line do two identical screwdrivers leave the same marks?
NO.

30. What is combustion and what three factors are necessary for it to occur?
rapid combo of oxygen & another substance, producing heat & light
1 fuel
2 oxygen
3. heat

31. Compare and contrast ignition temperature and flash point.
minimum temp @ which a fuel spontaneously combusts
↳ minimum temp. needed for a liquid to produce enough vapor to ignite

32. What is pyrolysis? Where does this happen most often?
decomposition of organic matter by heat
↳ grain silos hay bales > spontaneously combusting

33. What is the primary focus of the fire investigation?
finding the origin of the fire

34. How is arson evidence collected and preserved? 2-3 quarts of ash & debris @ point of origin collected in unused paint cans

35. What are the differences between high and low explosives? Give examples of each.
C-4, RDX, dynamite
↳ velocity of detonation greater than 1000 meters/second
velocity of detonation less than 1000 meters/second
↳ gunpowder & smokeless powder

36. What is the difference between primary and secondary explosives?
easily detonated by heat or shock, or friction
↳ insensitive to heat, shock or friction (normally burn rather than explode)
Ex) TNT, PETN, RDX (C-4)

37. What is the most commonly used low explosive?
found in blasting caps & primers
↓
smokeless powder