FORENSICS QUIZ-QUESTIONS & ANSWERS-Scientific Method-(4 pages)

1) What are the **(13) main topics & subtopics within Forensic Science?**
(Try to be familiar with at least one subtopic within each topic!)

1. Forensic Biology

- **DNA Analysis:** Identification through genetic material.
- **Serology:** Study of bodily fluids (blood, saliva, semen).
- **Entomology:** Use of insects to determine time of death.
- **Botany:** Analysis of plant material to solve crimes.

2. Forensic Chemistry

- **Toxicology:** Study of drugs, poisons, and other toxic substances.
- **Trace Evidence Analysis:** Examination of small, often microscopic evidence such as hair, fibers, and glass.
- **Controlled Substances:** Identification of illegal drugs and substances.

3. Forensic Pathology

- **Autopsy:** Examination of bodies to determine cause of death.
- **Odontology:** Study of dental evidence to identify remains or bite marks.
- **Forensic Anthropology:** Study of skeletal remains for identification and cause of death.

4. Forensic Toxicology

- **Postmortem Toxicology:** Analysis of body fluids and tissues to detect chemicals.
- **Human Performance Toxicology:** Study of substances' effects on human behavior and performance.
- **Doping Control:** Analysis of athletes for performance-enhancing drugs.

5. Forensic Psychology

- **Criminal Profiling:** Development of offender profiles based on crime scene analysis.
- **Competency Evaluations:** Determining a suspect's ability to stand trial.
- **Forensic Interviewing:** Techniques for interviewing victims, witnesses, and suspects.

6. Forensic Anthropology

- **Human Identification:** Identification of unknown remains.
- **Trauma Analysis:** Determination of injuries and cause of death from bones.
- **Taphonomy:** Study of decomposition processes affecting remains.

7. Forensic Odontology

- **Bite Mark Analysis:** Identification through bite mark comparison.
- **Dental Identification:** Identifying deceased individuals through dental records.

8. Digital Forensics

- **Computer Forensics:** Analysis of digital devices and data.
- **Mobile Device Forensics:** Extraction and analysis of data from smartphones and tablets.
- **Network Forensics:** Monitoring and analysis of network traffic for investigation.

9. Forensic Document Examination

- **Handwriting Analysis:** Examination of handwriting for authenticity.
- **Ink and Paper Analysis:** Chemical analysis of inks and paper to determine origin.
- **Forgery Detection:** Identifying counterfeit documents.

10. Forensic Engineering

- **Accident Reconstruction:** Recreating accidents to determine causes.
- **Failure Analysis:** Study of structural failures (e.g., buildings, machinery).
- **Product Liability:** Investigating defects in products causing harm.

11. Forensic Accounting

- **Fraud Examination:** Investigation of financial fraud and embezzlement.
- **Asset Tracing:** Identifying and tracking hidden assets.
- **Financial Statement Analysis:** Examination of financial records for irregularities.

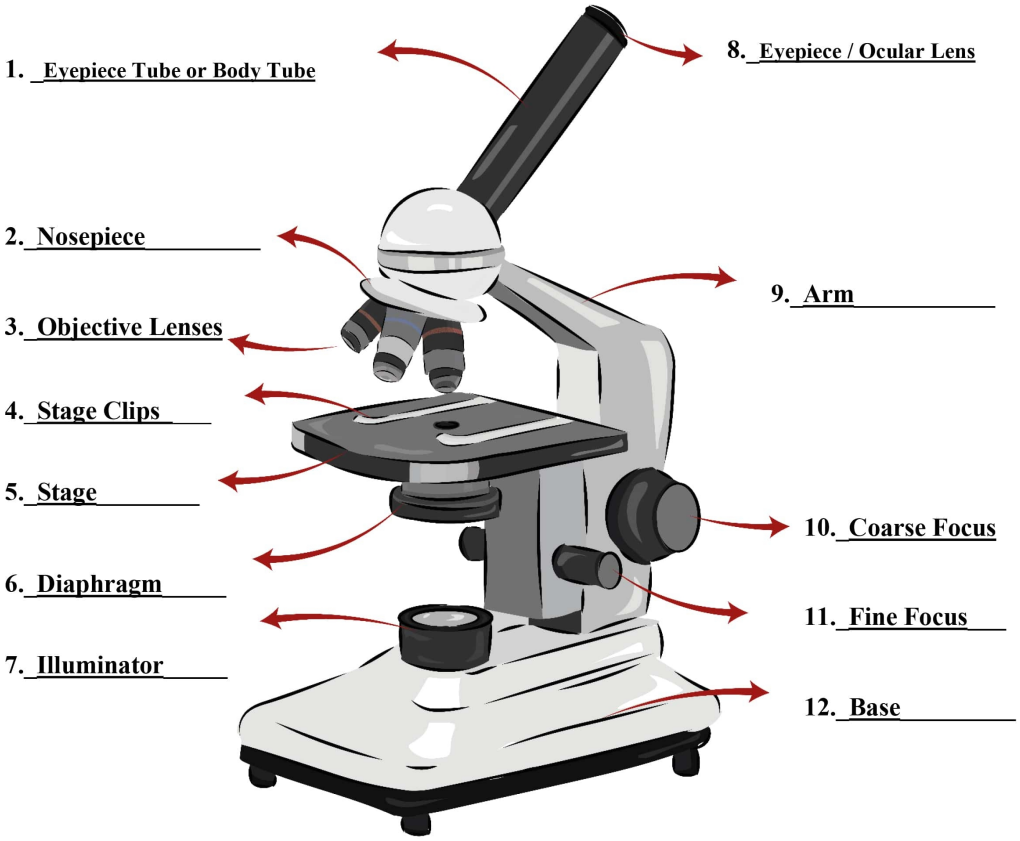
12. Firearms and Toolmark Analysis

- **Ballistics:** Study of bullets and firearms to determine a match.
- **Toolmark Analysis:** Comparison of marks left by tools at a crime scene.
- **Gunshot Residue (GSR) Analysis:** Detecting residue from fired firearms.

13. Forensic Art

- **Facial Reconstruction:** Recreating a person's face from skeletal remains.
- **Composite Drawing:** Creating a suspect's likeness based on witness descriptions.
- **Age Progression:** Estimating an individual's current appearance based on past photos.

2) What are the **(12) parts of the microscope?** Sketch and label.



3) What are the **(9) steps of the Scientific Method**
that WE identified in class?

1) observe
2) question
3) hypothesis
4) design & carry out experiment
5) data
6) analysis
7) conclusion
8) publish
9) retest (replicate)

4) What are the **(3) types of variables** that most experiment use?
Explain the meaning of each by describing how type of music played affects plant growth.

1) **independent variable**: the variable that "I change." In the experiment we discussed, you observe how the change in the independent variable (type of music) affects the dependent variable (plant growth).

2) **dependent variable**: the variable that you measure in an experiment. It depends-on or responds to the change in the independent variable. In our experiment, it would be the amount of plant growth.

3) **control variable**: the variable that you keep constant, so you can determine the precise effect that the independent variable has on the dependent variable. In our plant experiment, this would be keeping plant species, water, sunlight, & type of soil constant.