

Q. What Fingerprint Classification System is developed in Germany?

A. Henry Classification System

B. Roscher System

C. Juan Vucetich System

D. None of the above

# •The Most Popular Ten Print Classification System.

- ❑ Roscher System - developed in Germany. Implemented in Germany and Japan.
- ❑ Juan Vucetich System - developed in Argentina. Implemented through out South America.
- ❑ Henry Classification System - developed in India. Implemented in most English speaking countries.

Q Who is the father of Criminalistics?

A.Hans Gross

B.Albert Osborn

C.Edmond Locard

D.Alphonse Bertillon

□ **Hans Gross** - (1847-1915) An Austrian criminalist who in 1891 first used the term criminalistics. Father of forensic publications.

□ **Albert Osborn** - (1858-1946) father of document examination. His work led to the acceptance of documents as scientific evidence by the courts.

□ **Edmond Locard** - (1877-1966) father of the crime lab. In 1910, he started the first crime lab in an attic of a police station. Founded the institute of criminalistics in France.

□ **Alphonse Bertillon** - (1853-1914) father of personal identification. Developed a system to distinguish one individual person from another based on certain body requirements.

Q In polygraph examination, the subject must undergo a series of interview. This kind of interview is designed to obtain confession.

- A. Pre-test interview
- B. Post-test interview
- C. Mid-test interview
- D. Preliminary interview

Q Examination of insects to aid in legal investigation.

A. Insectomology

B. Entomology

C. Odontology

D. Criminology

- **Forensic Entomology** - is the use of insects and their arthropod relatives that inhabit decomposing remains to aid in legal investigations.

Q Ogive is...

A. Parts of hair

B. Parts of camera

C. Parts of polygraph machine

D. Parts on a bullet

Q Lands and grooves is for firearm's barrel, while for human's fingerprint is...

A. Whorl and loops

B. Thumb and little finger

C. Friction ridges and furrows

D. Left and right hand

Q At the time of death the body temperature falls rapid in the first..

- A. 4 hours after death
- B. 6 hours after death
- C. 8 hours after death
- D. 12 hours after death

The body temperature gradually  
decreases until it assumes the  
temperature of the environment...

The body temperature is...

- most rapid in the first four hour after death and
- then progressively slower during the next 6-9 hours..

- it reaches the temperature of the surroundings beyond 12 hours;
- the fall of 15°F to 20°F is considered as death of the body.

Q Why the dead person still urinate, defecate or expel waste product at the time of death?

A. because of the relaxation of the sphincters

B. because our nerve organ is shock

Q The investigator who collects physical evidence should obtain a receipt from each person to whom he gives or receives evidence under the principle of...

- A. chain of custody of evidence
- B. criminal investigation doctrine
- C. cardinal rules of investigation
- D. proof beyond reasonable doubt

# Points to Remember

# Polygraph

- Depending on the complexity of the case and the number of issues being tested a polygraph examination generally takes 2 to 3 hours.
- The longest phase of the polygraph examination is the Pre-test interview.

## Polygraph

The **sphygmograph** was a mechanical device used to measure blood pressure in the mid-19th century. It was developed in 1854 by German physiologist Karl von Vierordt

# Polygraph

- Cleve Backster

- He introduced the symptomatic question or myth to disclose whether or not an outside issue is bothering the subject.

# Polygraph

## Associated Research Inc.

- Manufactured the first commercial polygraph instrument for Leonard Keeler.

# Polygraph

- Keeler polygraph

- The name of the first manufactured polygraph instrument.

# Polygraph

- If a subject looked down and moved his toe in a circular motion while being interrogated, he was taught to be deceptive.

This ancient deception detection is known as Nervous behaviorism.

# Polygraph

- Lafayette Instrument Company

- is the leader in the manufacture of polygraph instrument.

# Polygraph

- The largest polygraph market in the world is Ukraine.

# Polygraph

- The most prominent polygraph examiner of all time is Leonard Keeler.
- Present day manufacturers of polygraph instrument
  1. Lafayette
  2. Stoelting
  3. Axciton
  4. Limestone

# Questioned Document

Q What stage of handwriting examination is made when the characteristics of the questioned document are then compared against the standard document?

- A. Analysis
- B. Comparison
- C. Evaluation
- D. Validation

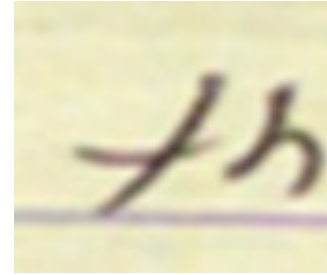
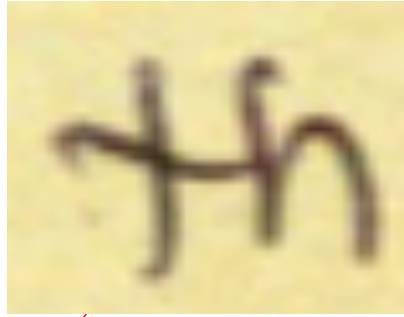
# Three stages in the process of Handwriting examination

1. Analysis: The questioned and the known items are analyzed and broken down to directly perceptible characteristics.

## 2. Comparison:

The characteristics of the questioned document are then compared against the standard document.





are criminal action instituted:  
 L actions instituted as follows:  
 offenses where preliminary invest  
 ing complaint w/ the proper offic  
 ducting the requisite preliminary  
 all other offenses, by filling the  
 ction directly w/ municipal trial c  
 al circuit trial court. (MCTC) or  
 OFFICE of prosecutor

**QD**

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 - the crimes of adultery and co  
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Who and shall the crimes of  
 act of lasciviousness be pr  
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 by the offended party, or her

**STD**

**The connecting stroke of letter "t" and "h"**

Action

crimes

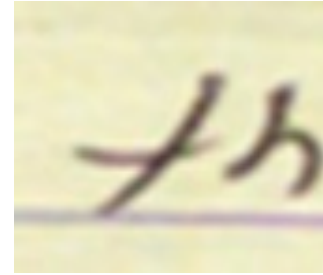
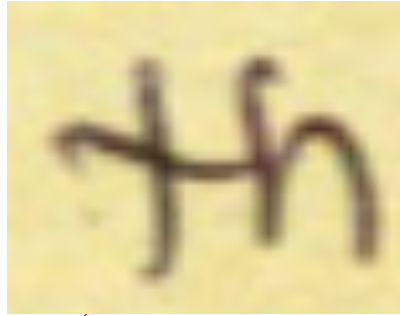
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slant of the letters/words



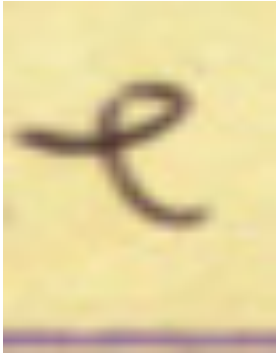
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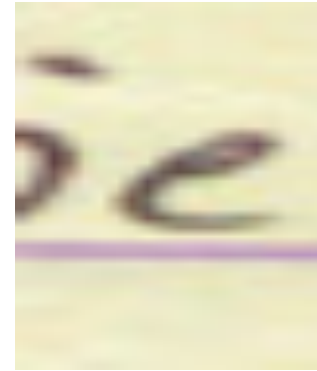
**STD**

**Initial stroke of letters and their artistic designed**



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**Form of letter "E"**

riminal Action instituted

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**STD**

**Spacing**

This is a handwriting sample for Lorie. She said my handwriting looks like chicken scratch. I don't think that my handwriting is bad at all. In fact I can always read it. She also knows that I have to wear a brace on my wrist for a while.

**1 Baseline Alignment**  
**2 Connecting Stroke**

This is a handwriting sample for Devin. She said my handwriting looks like chicken scratch. I don't think that my handwriting is bad at all. In fact I can always read it. She also knows that I have to wear a brace on my wrist for a while.

**3 Height Relationship**  
**4 Structural Difference**

### 3. Evaluation:

Similarities and differences of handwriting characteristics are evaluated and this determines which ones are valuable for a conclusion.

This depends on the uniqueness and frequency of occurrence in the items.

# Points to consider in the evaluation process

## ➤ The Principle of Identification

When the two items possess a combination of characteristics that are similar or agree in their relationships to one another and there are no inexplicable disparities, it may be concluded that they are the same in nature and related to a single author of the handwriting.

- The evaluation of such characteristics at the present time is predominantly subjective in nature.

- Two characteristics of handwriting used for evaluation.

1. Class characteristics

2. Individual characteristics

- Repeated characteristics which are inconspicuous should be sought first and given the most weight
- The most identifying characteristics are those which are most divergent from the regular system or national average (individual handwriting characteristics of the writer).

- Albert Osborn

Commonly known class  
characteristics of handwriting

# Palmer Method

A B C D E F G H I J

K L M N O P Q R S T

U V W X Y Z

a b c d e f g h i j k l m  
n o p q r s t u v w x y z

1 2 3 4 5 6 7 8 9 0

# Zaner-Blosser method

Aa Bb Cc Dd Ee  
Ff Gg Hh Ii Jj  
Kk Ll Mm Nn Oo  
Pp Qq Rr Ss Tt  
Uu Vv Ww Xx Yy  
1 2 3 4 5 — 6 7 8 9 0

Sample of Individual characteristics of  
handwriting

## ➤ ALIGNMENT

The relation of the letters in words to the baseline

*adherence to baseline*

*adherence to baseline*

*adherence to baseline*

*adherence to baseline*

## ➤ Form

Form is the way a writer makes a letter



ANGULAR FORMS- Are made by stopping the pen and changing direction

ARCADE FORMS- look like arches rounded on the top and open at the bottom

GARLAND FORMS- A cup like connected form that is open at the top and rounded on the bottom

## ➤ SLANT

- Angle of writing; it can be forward or backward

*forward slant*

*backward slant*

- PROPORTION or RATIO

- the relation between the tall and the short letter; It is the symmetry of individual letter; usual habits found in a specific writer.

*Height Ratio*

*Height Ratio*

SKILL- writer's proficiency.

High skill level

Duckhead Corner North  
South Duckhead Boulevard  
Miami, Fla. 33156

LOW SKILL LEVEL

This is an example of a  
rather low skill level. It  
is not pleasing to the beholder.

4. Optionally, the procedure may involve a fourth step consisting of verification/validation or peer review.

Points to remember in QD

Albert Osborn

Document with questionable  
signature

- determine whether or not the  
document is genuine.

# Indication Of Genuineness

- Carelessness
- Naturalness
- Alternation of thick and thin strokes
- Speed

- Simplification
- Upright letters are intermingled with slanting letters
- The upward strokes to a threadlike tracing

- Rhythm
- Good line quality
- Variation

(Generally presence of tremors, remnants of carbon, retouching (patching) indicates forgery)



- extensive study and practice

the opinion of an expert witness  
requires “special knowledge, skill,  
experience or training”

- Sec. 49, Rule 130 of the Rules of Court,

- Credentials of the QD examiner play a vital factor in the evidentiary weight of his testimony

- The evidentiary value depends upon the assistance he may afford in pointing out distinguishing marks which would escape notice from an unpracticed observer (Tamani vs. Bravo GR 171497).

- **GRAPHOANALYSIS**- the study of handwriting based on the two fundamental strokes, the curve and the straight strokes.
- **GRAPHOMETRY**- analysis by comparison and measurement.
- **GRAPHOLOGY**- the art of determining character disposition and amplitude of a person from the study of handwriting.

# Exemplar

- is a term used to characterize know materials.
- those things whose origins are known and can be proven
- can be legally used as examples to compare with matters in question.

- Documents executed within two to three years are most suitable.
- If these are not available, documents dating further from the questioned material may be used.
- Do not rely on present-day writing exclusively, if possible

**How Many Samples Of Handwriting  
Are Needed?**

- The type of case determines the number of exemplars that the document examiner needs for comparison with the questioned documents.

Always try to collect as many samples as possible because it is more important to have suitable undisputed samples than a large quantity of little comparable value.

One signature is sufficient when all the characteristics of handwriting match.

An average would be twenty to twenty-five signatures and four to five pages of normal handwriting and/or hand printing preferably written at different times.

# Photography

The word "photography" was created from the Greek roots

- *phōtos*, (light)
- (*graphé*) (representation by means of lines or drawing)

☐ drawing with light.

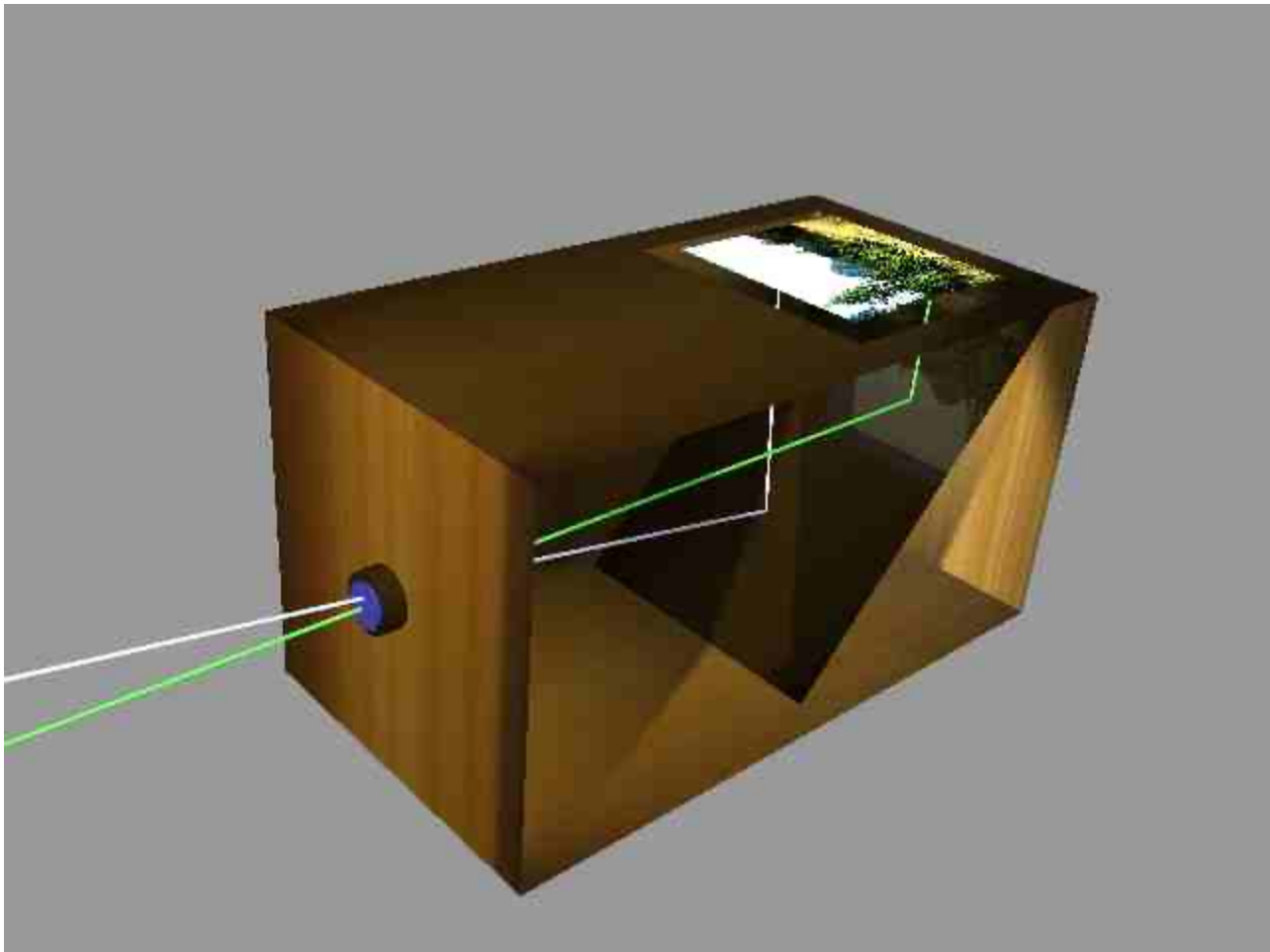
All photography was originally monochrome, or *black-and-white*.

The first permanent color photograph was taken in 1861 using the three-color-separation principle first published by physicist James Clerk Maxwell in 1855.

# Camera Obscura

A **camera obscura** (Latin: "darkened room") is an optical device that projects an image of its surroundings on a screen.

It is used in drawing and for entertainment, and was one of the inventions that led to photography and the camera.



The image can be projected onto paper, and can then be traced to produce a highly accurate representation.

The largest camera obscura in the world is on Constitution Hill in Aberystwyth, Wales



Ibn al-Haytham  
(Alhazen)

Inventor  
of the  
camera  
obscura

The first permanent photoetching was an image produced in 1822 by the French inventor Nicéphore Niépce

# 10 Basic Camera Parts

There are 10 basic **camera parts** to identify in today's digital world. Whether you have a digital compact or a digital SLR, these parts will inevitably be found on most cameras.

# 1. Lens



- The light enters through the lens, and this is where the photo process begins.

## 2. Viewfinder



- The main visual source for image-taking, but many of today's digital compacts have replaced the typical viewfinder with an LCD screen.



### **3. Body**



The body is the main portion of the camera

## 4. Shutter Release



- The shutter release button is the mechanism that “releases” the shutter and therefore enables the ability to capture the image.



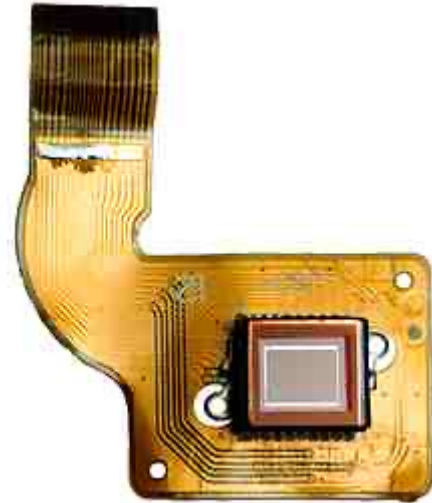
# 5. Aperture



- The aperture affects the image's exposure by changing the diameter of the lens opening, which controls the amount of light reaching the image sensor.



## •6. Image Sensor



The image sensor converts the optical image to an electronic signal, which is then sent to your memory card.

- **7. Memory Card**

- The memory card stores all of the image information.



- **8. LCD Screen**

- The LCD screen is found on the back of the body and can vary in size.

## •9. Flash

- It can be useful to provide a bit of extra light during dim, low light situations.



## •10. User Controls

- Your basic digital compacts may only have auto settings that can be used for different environments, while a DSLR will have numerous controls for auto and manual shooting along with custom settings.

What part of a camera has a function of reflecting the light so that it can collect great bundles of light rays from a single point and redirect them all to meet again at another point on the film?

- A. camera lens
- B. Camera shutters

A mechanical device used to control the duration of the time interval during which light will travel to act on the film.

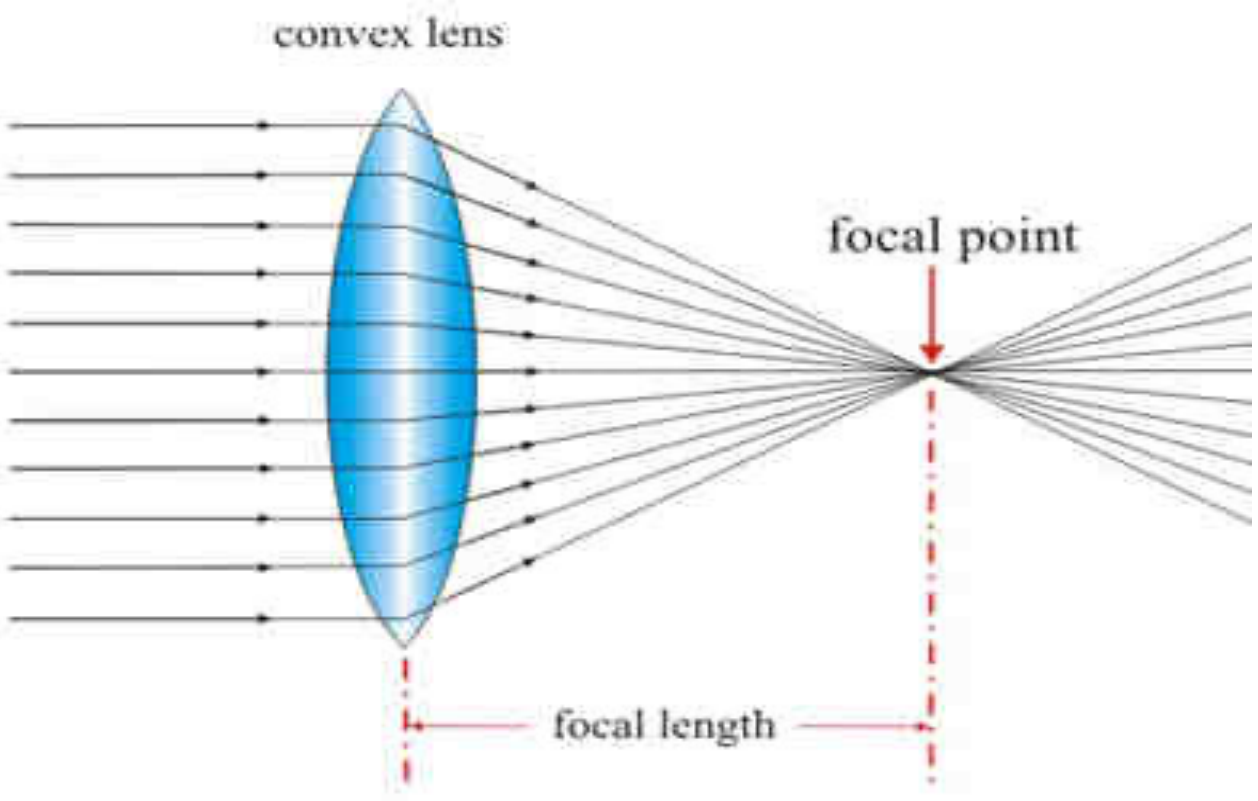
- A. camera tripod
- B. Camera shutters

The time that the shutter is opened, following light to reach the film.

A. Shutter timing

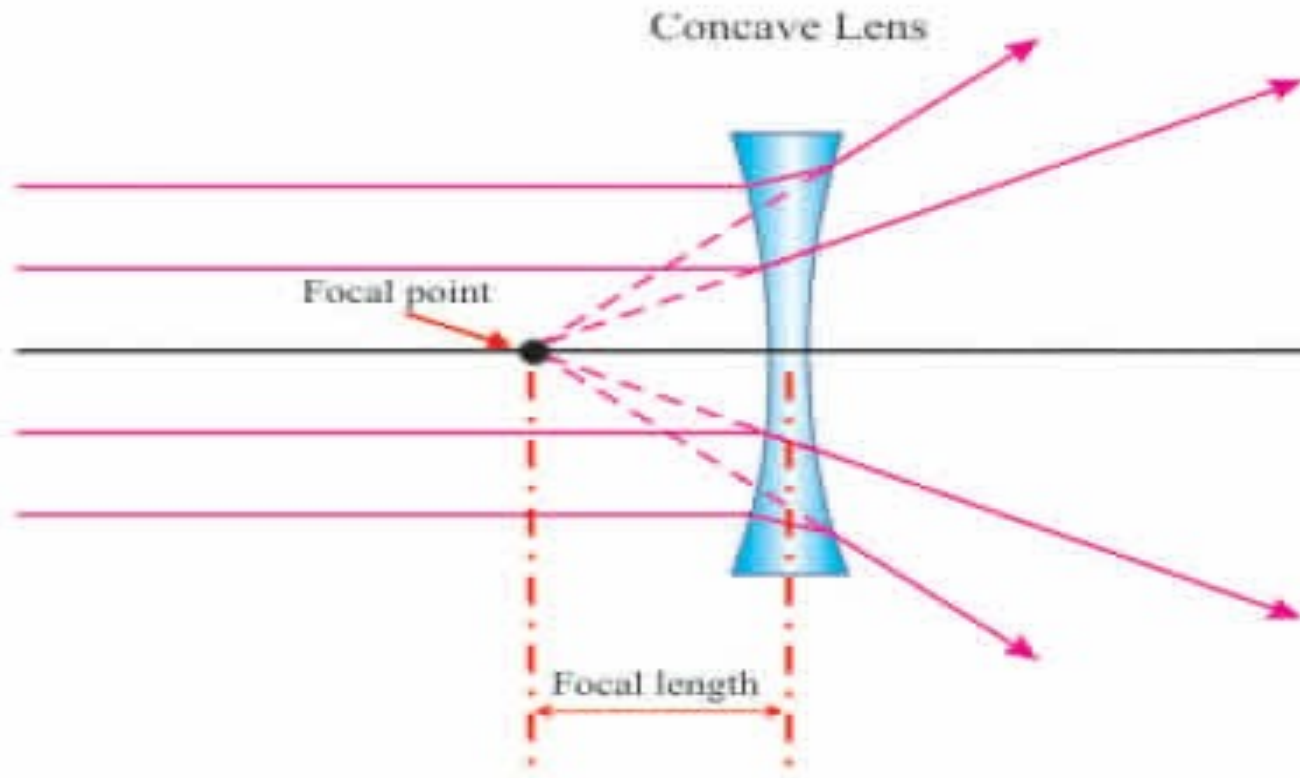
B. Shutter Speed

A convex lens is thicker at the center than at the edges.

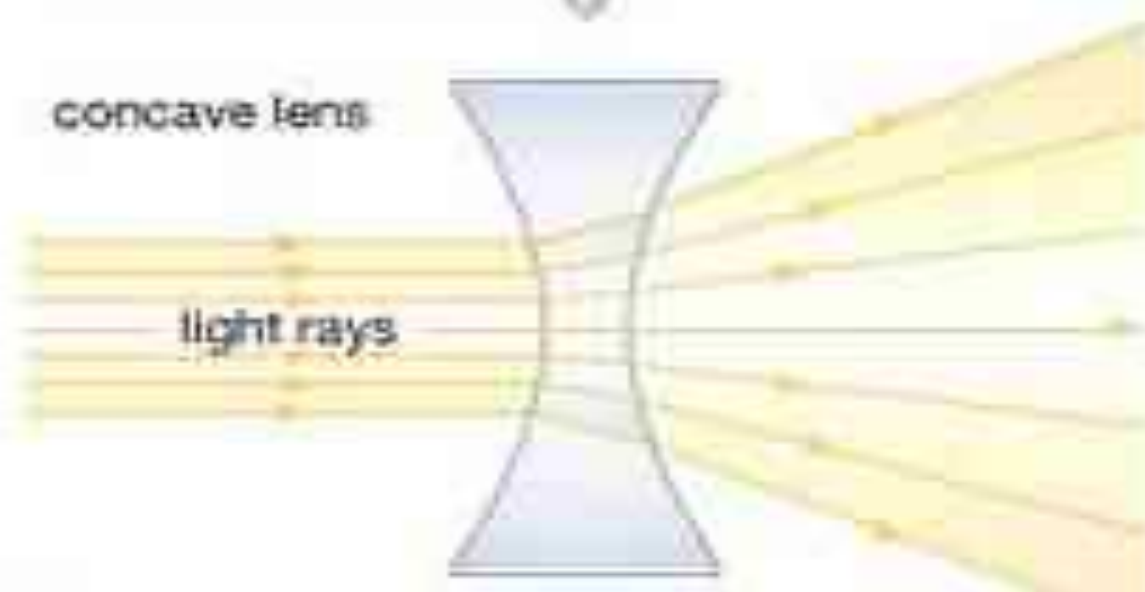
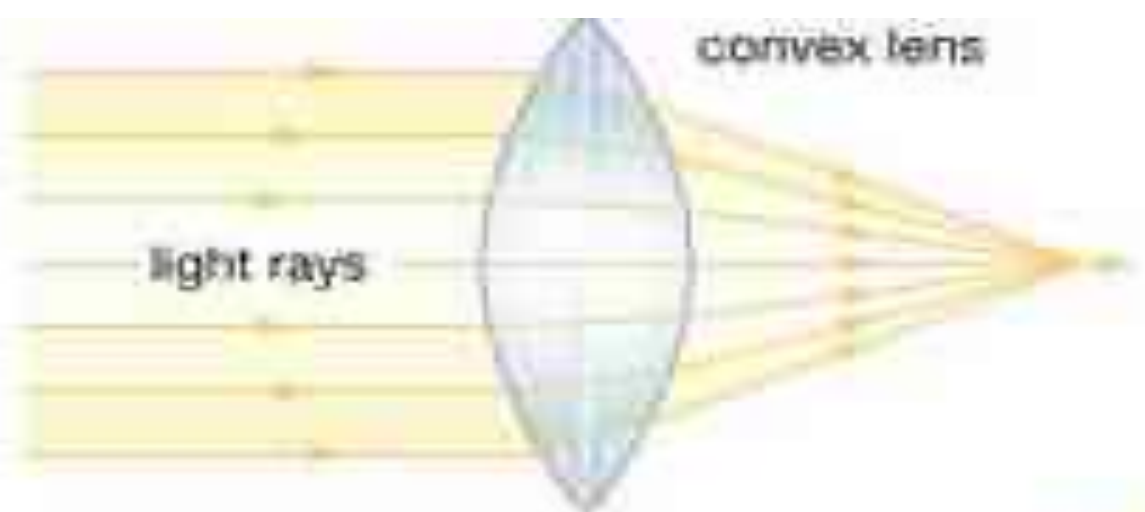


# Concave Lens

A concave lens is thinner at the center than at the edge.



- Convex lenses are thicker at the middle. Rays of light that pass through the lens are brought closer together (they converge). A convex lens is a **converging lens**.
- Concave lenses are thinner at the middle. Rays of light that pass through the lens are spread out (they diverge). A concave lens is a **diverging lens**.



- When parallel rays of light pass through a concave lens the refracted rays diverge so that they appear to come from one point called the **principal focus**.

- The distance between the principal focus and the center of the lens is called the **focal length**.



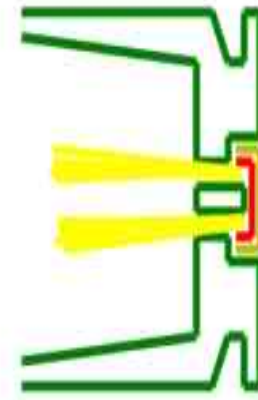
**Wide-angle lens** refers to a lens whose focal length is substantially smaller than the focal length of a normal lens for a given film plane.



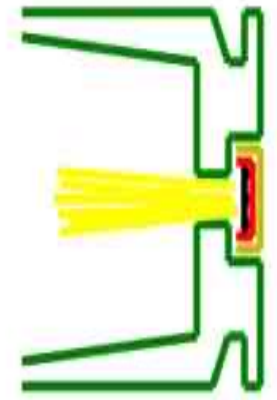
# Ballistics

The boxer primer has a single large flash hole in the bottom of the case.

Berdan primer has two vents or flash holes in the primer pocket



BERDAN



BOXER

- **WHAT IS BALLISTICS AS DISTINGUISHED FROM FORENSIC BALLISTICS?**

- **Ballistics** deals with the motion, behavior and effects of projectiles and the conditions affecting the motion that involves direct, rotary and transitional MOVEMENT; while,

- **Forensic Ballistics** is a firearms identification by means of the ammunition fired through them.

**•WHAT ARE THE DIVISIONS OF BALLISTICS?**

- **INTERIOR BALLISTICS** – the science of the motion of the projectile while still in the firearm, namely the studies of combustion of the powder, pressure developed and velocity etc.

- **EXTERIOR BALLISTICS** – the science of the motion of the projectiles after leaving the muzzle namely trajectory, parabola, velocity, range penetration, etc.

- **TRANSITIONAL BALLISTICS** – the science of the motion of projectiles as to its behavior while travelling in the air. (E.g. twisting or gyroscopic action, yaw etc.)

- **TERMINAL BALLISTICS** – the science of the effects of the projectile on the target.
- **(Medical Ballistics** – Human being as target)
- **(Legal Ballistics** – investigation involving firearms)
- **(Geo Ballistics** – location or geography)

- **WHAT ARE THE TYPES OF IDENTIFICATION OF FIREARM, BULLET AND CARTRIDGE CASE?**

- Physical examination
- Laboratory examination
- (Bullet, Shell, Firearms, Cartridge and other evidence related to firearms).

# WHAT ARE THE DIFFERENT EFFECTS OF PROJECTILE?

- **INDENTATION** – entry point (hole - GWE)
- **PENETRATION** – depthness (cavity)
- **PERFORATION** – exit point (hole - GWE)

## •SMUDGING AND TATTOOING?

deposits around a bullet wound in cases of close-range fire are referred to as **smudging and tattooing** or stippling.

# WHAT IS THE DIFFERENCE BETWEEN TRAJECTORIES FROM PARABOLA?

- Trajectory (the path the bullet will travel) and
- Parabola (the path the bullet have traveled) is both curve path of the bullet.

**•WHAT ARE THE THREE (3) DIVISIONS OF FORENSIC BALLISTICS?**

- **FIELD INVESTIGATION** – refers to the work of an investigation in the field. It concerns mostly with the collection, marking, preservation, packing and transmission of firearms evidences. It includes the study of class characteristics of firearms and bullets.

- **TECHNICAL EXAMINATION** – refers to the examiners who examine bullets/ or shells, whether fired from also whether or not cartridges were loaded and ejected made by the suspected firearms submitted. Reports are made by the examiners and testify in court regarding their reports.

**LEGAL PROCEEDINGS** – *Court Trials* – wherein the ballistics report of the firearm examiner and the ballistics exhibits are presented during the trial of the case in a court justice.

## •WHAT IS FIREARM?

**“Firearms” or “Arms”** are herein used includes rifles, muskets, carbines, shotguns, revolvers, pistols and all other deadly weapons from which a bullet, ball, shot, shell or other missile may discharge off by means of gunpowder or other explosives. The term also includes air rifles except such as being of small caliber and limited range used as toys. **The barrel of any firearm shall be considered a complete firearm for all purposes hereof** (Sec. 877, Revised Administrative Code)

- **WHAT ARE THE LAWS OF FIREARM?**
- **Revised Administrative Code (RAC) Sec. 877 Defines Firearm**
- **Act No. 2711, March 10, 1917**
- **P.D. No. 1866, June 26, 1983**
- **R.A. No. 8294, June 6, 1997**

# •WHAT ARE THE FOUR (4) TYPES OF FIREARM?

- Revolver** - a hand firearm in which a rotating cylinder successively places cartridges into position for firing.
- Pistol** - a hand firearm usually applied to simple shot and automatic loading.
- Rifle** - a type of weapon designed to be fired from the shoulder.
- Shotgun** - a smooth-bore weapon designed to shoot a number of lead pellets in one charge.

**WHEN LOOKING FOR SIMILARITIES  
IN FIREARM IDENTIFICATION, WHAT  
IS TO BE CONSIDERED?**

**Answer: Rifling - Barrel**

**WHERE DO YOU FIND THE  
FINGERPRINT OF A GUN?**

**Answer: Rifling**

# **WHAT IS RIFLING?**

**Answer: The RIFLING consists of a number of helical grooves cut in the interior surface of the bore of the firearm.**

**•WHAT ARE THE TYPES OF FIREARMS  
IN RIFLING?**

- **Small type** – four grooves, right hand twist, grooves and lands of equal width. (4R G-L)
- **Smith and Wesson type** – five grooves, right hand twist, grooves and lands of equal width (5R G-L)

- **Browning type** – six grooves, right hand twist, narrow lands and broader grooves (6R G2X)
- **Colt type** – six grooves, left hand twist, narrow lands and broader grooves (6L G2X)

- **Webley type** – seven grooves, right hand twist, narrow lands and broader grooves (7R G3X)
- **Army type** – four grooves, right hand twist, narrow lands and broader grooves (4R G3X)

**WHERE FINGERPRINT OF A GUN IS  
FOUND?**

**Answer: Barrel**

**IN BULLET RECOVERY BOX, RECOVER  
THE BULLET IN \_\_\_\_\_ FOR  
COMPARISONS.**

**Answer: Perfect conditions**

**WHAT IS THE DUPLICATE OF THE  
BARREL?**

**Answer: Bullet**

**RIFFLING – LANDS AND GROOVES –  
CAUSE THE TWISTING. THE MAIN  
PURPOSE IS FOR THE BULLET TO...?**

**Answer: Stabilize flight to avoid  
tumbling.**

**BULLET CAN BE IDENTIFIED  
THROUGH?**

**a. Class characteristics**

**b. Individual characteristics**

## **WHAT IS CALIBER?**

**Answer: Caliber is the diameter of the inner surface of the barrel that is measured from land to land.**





