BALLISTICS

• **Internal Ballistics** - projectile inside the weapon.

• **External Ballistics** - projectile in flight.

• **Terminal Ballistics** - projectile striking the target.
As the powder begins to ignite and chamber pressure builds, the bullet is thrust forward to engage the rifling.
INTERNAL BALLISTICS (cont.)

- The pressure builds as more powder ignites, adding velocity to the projectile.
• As the round travels down the barrel, it is rotated by the rifling cut into the barrel.

• The rotation will stabilize the round once it exits the barrel.
EXTERNAL BALLISTICS

- As soon as projectile exits the bore, velocity drops and air drag slows round down.
Max ordinate 4.6 inches
MAXIMUM ORDINATE

Line of Sight

Trajectory

Yards

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300

300 Yard Zero

-2.5 -1.8 -1 -0.4 0.3 0.9 1.4 1.9 2.4 2.8 3.2 3.5 3.8 4.1 4.3 4.4 4.5 4.6 4.6 4.5 4.4 4.2 4 3.7 3.4 3 2.5 2 1.4 0.7 0

Yards

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300
• Bullet crosses line of sight on upward path at 36 yards; crosses again on downward path at 300 yards.
Engagement at Less Than 36 Yards

- Shots will be below sight picture
- Must aim higher to be accurate
BALLISTICS AT CLOSE RANGES

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<th>-2.5</th>
<th>-2.0</th>
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300 Yard Zero
Engagement at 50 and 100 Yards

- Shots will be above sight picture
- Must aim lower to be accurate
BALLISTICS AT CLOSE RANGES

Trajectory

Line of Sight

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TEMPORARY CAVITY

- Friction causes round to tumble, creating temporary cavity.
- Shock is transmitted through body fluids.
Tissue crushed and torn by the projectile will remain open as the permanent cavity.
Hydraulic Decompression (Bleed Out)

- Heart or vascular structure.
- Target can still effectively fight for 10-15 seconds.
- Not effective for close range fight, though will usually lead to death.
IMMEDIATE INCAPACITATION
AIMING POINTS FOR THE HEAD

Frontal Shot:
“T-Box”
VITAL AREAS OF THE BODY

- Base of Throat
- Heart and Major Vascular Structures
- Liver
- Kidneys