WWII Air Combat
The players

Luftwaffe
Royal Air Force (RAF)
United States Army Air Force (USAAF)
The planes

Bombers
- Slow
- Poor maneuverability
- Heavily armored
- Long range

Fighters
- Fast
- Maneuverable
- Interdiction (and later escort)
Uses

Strategic bombing
   Targeted civilian infrastructure
   Used primarily by the RAF and USAAF

Tactical bombing
   Targeted military infrastructure and personnel
Notable bombing events

Doolittle raid
Berlin attack
D-Day
Hiroshima and Nagasaki
Air defenses

Fighters
Anti-air artillery
Counter-defenses

Escort fighters (later)

Armed bombers
B-17 Flying Fortress

Strategic bombers
Long range
B-17E was built with a focus on offensive capabilities
Many machine guns
Formations

“Heavy bombers flew in formation because, that was the most effective tactics against the enemy flak and fighter defense. In a survey in 1943, it was discovered that just over half of the bombers shot down by the Germans during attacks on target in Europe were those that left the main formation.”

https://b17flyingfortress.de/en/details/formationsflug
Combat box formation used prior to escort fighters
Escort Fighters

Long range fighters
  Protected bombers
  Established air supremacy
Allowed the USAAF to continue daytime bombing operations
First long-range fighter used by the Allies
P-51s as Escort Fighters

P-51s quickly outclassed the Luftwaffe’s Messerschmitt Bf 119 and Focke-Wulf Fw 190A
Sent ahead to engage enemy interceptor fighters and establish air supremacy
Heavily diminished the threat to bombers by the end of 1944
Sent to strafe enemy airfields when returning from escort missions
Quick stats

Killed millions of civilians, mostly in Japan, Germany, the USSR, and China

Heavy industrial damage

Estimated aircraft losses (total)

  RAF ~ 42,010 in Europe
  USAAF ~ 38,418 in Europe
  Germany ~ 76,785

100,000s of aircraft produced during and during the war