Comparing Fighter Aircraft

MISSION

Research each of the airplanes on the chart to establish a working knowledge of each single-seat fighter or fighter-bomber. If you could select a single-seater fighter aircraft to use in an air operation, which one would you choose? Why?

KEY KNOWLEDGE AND SKILLS

What key knowledge and skills will students acquire as a result of this activity?

• Learn about fighter aircraft within a context of technological advances.
• Evaluate each aircraft to understand its advantages and drawbacks.
• Assess the pros and cons of each aircraft.

HISTORICAL CONCEPTS

Continuity and Change

Continuity and change are an integral part of history. Even within key events and issues, various elements can change.
BACKGROUND

Technological advancements in fighter planes from 1939 to 1945 transformed the significance of air operations in war. Each new technological improvement on one side spurred new designs in engines, armaments and capabilities from the other. As a result, both sides had several different aircraft, or multiple versions of the same aircraft, in service at the same time for a variety of purposes. However, for each new advance in fighter aircraft, there was usually a drawback. Some aircraft could turn more quickly, but might not be able to match the speed of another aircraft. Other aircraft that were heavily armed were not able to travel extended distances. The airmen flying each of these planes had their own opinions, as each aircraft offered benefits as well as drawbacks.

ACTIVITY

1. In small groups (3–4 students per group), students will research the benefits and drawbacks of each aircraft, using a chart and Internet sources to gather background information for each aircraft on the chart. Please note that the list is incomplete. Students can add other aircraft from the other nations involved in Second World War air operations.

2. Students will produce a list of questions they have developed as part of their investigation. These questions will be posted to make their thinking process visible to the other groups.

3. Students will be asked to rank the five aircraft they would use in an air operation from 1 (favourite) to 5 (least favourite).

4. The results of each group will be compared to determine whether or not there is consensus between the groups, or if their rankings are different.

SOURCES

For a deeper analysis of Second World War aircraft:
- Spitfire: www.spitfireperformance.com/spit14v109.html
- Typhoon: www.aviation-history.com/hawker/typhoon.htm
- Hurricane: www.aviation-history.com/hawker/hurricane.htm
- Focke Wulf: www.aviation-history.com/focke-wulf/fw190.htm
<table>
<thead>
<tr>
<th>Name of Aircraft</th>
<th>Engine</th>
<th>Power (horsepower) (hp)</th>
<th>Wingspan (m)</th>
<th>Speed (max): kilometres per hour (kph)</th>
<th>Climbing Rate (m/minute)</th>
<th>Range (km)</th>
<th>Service Ceiling (m)</th>
<th>Maximum Weight Load (kg)</th>
<th>Armament</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supermarine Spitfire XIV</td>
<td>Rolls-Royce Griffon 655</td>
<td>2,035 hp</td>
<td>11.25 metres</td>
<td>716 kph @ 26,000 ft.</td>
<td>674 m/minute</td>
<td>1,367 km</td>
<td>(13,562 m)</td>
<td>(609 kg)</td>
<td>4 × .303 Machine guns and 2 × 20 mm cannon with an external bomb load of 453 kg (1,000 lbs)</td>
</tr>
<tr>
<td>Hawker Typhoon MkI</td>
<td>Napier Sabre IIB</td>
<td>2,420 hp</td>
<td>12.5 metres</td>
<td>630 kph @ 17,000 ft.</td>
<td>835 m/minute</td>
<td>1,319 km</td>
<td>(10,973 m)</td>
<td>(1,928 kg)</td>
<td>8 air-to-ground rockets; 4 × .20 cannons and could carry 900 kg (2,000 lbs.) of bombs</td>
</tr>
<tr>
<td>Hawker Hurricane Mk IV</td>
<td>Rolls-Royce Merlin XX</td>
<td>1,620 hp</td>
<td>12.2 metres</td>
<td>547 kph @ 21,000 ft.</td>
<td>838 m/minute</td>
<td>740 km</td>
<td>(12,192 m)</td>
<td>(1,082 kg)</td>
<td>2 × 250 or 500 lbs (225 kg) bombs OR 2 × .40 mm Vickers machine guns</td>
</tr>
<tr>
<td>Messerschmitt Bf 109 G-2</td>
<td>Daimler-Benz DB 605D</td>
<td>1,800 hp</td>
<td>9.92 metres</td>
<td>636 kph @ 20,669 ft.</td>
<td>1019 m/minute</td>
<td>849 km</td>
<td>(11,600 m)</td>
<td>(482 kg)</td>
<td>2 underwing × 20 mm cannons; 2 × 7.62 mm machine × and 1 hub × 20 mm MG cannon</td>
</tr>
<tr>
<td>Focke-Wulf 190 A5</td>
<td>BMW 801D</td>
<td>1,700 hp</td>
<td>10.44 metres</td>
<td>636 kph @ 20,669 ft.</td>
<td>900 m/minute</td>
<td>804 km</td>
<td>(11,400 m)</td>
<td>(1,699 kg)</td>
<td>4 × 20 mm cannons; 2 × 13 mm machine guns; 1 × 250 kg (2 × 550 lbs) bombs</td>
</tr>
</tbody>
</table>