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/hurrcane.htm

Messerschmitt: www.aviation-history.com/messerschmitt/bf109.html

Focke Wulf: www.aviation-history.com/focke-wulf/fw190.htm

Chart of Fighter Aircraft with Specifications

Name of Aircraft	Supermarine Spitfire XIV	Hawker Typhoon Mk1	Hawker Hurricane Mk IV	Messerschmitt Bf 109 G-2	Focke Wulf 190 A5
Type of Plane	Fighter	Fighter-Bomber	Fighter	Fighter	Fighter-Bomber
Engine	Rolls-Royce Griffon 655	Napier Sabre IIB	Rolls-Royce Merlin XX	Daimler-Benz DB 605D	BMW 801D
Power (horsepower) (hp)	2,035 hp	2,420 hp	1,620 hp	1,800 hp	1,700 hp
Wingspan	11.25 metres	12.5 metres	12.2 metres	9.92 metres	10.44 metres
Speed (max): kilometres per hour (kph)	716 kph @ 26,000 ft.	630 kph @ 17,000 ft.	547 kph @ 21,000 ft.	636 kph @ 20,669 ft.	636 kph @ 20,669 ft.
Climbing Rate (metres per minute)	674 m/minute	835 m/minute	838 m/minute	1019 m/minute	900 m/minute
Range	1,367 km	1,319 km	740 km	849 km	804 km
Service Ceiling (maximum)	(13,562 m) 44,500 feet	(10,973 m) 36,000 feet	(12,192 m) 40,000 feet	(11,600 m) 38,500 feet	(11,400 m) 37,400 feet
Maximum Weight Load	(609 kg) 1,342 lbs	(1,928 kg) 4,250 lbs	(1,082 kg) 2,386 lbs	(482 kg) 1,062 lbs	(1,699 kg) 3,745 lbs
Armament	4 × .303 Machine guns and 2 × 20 mm cannon with an external bomb load of 453 kg (1,000 lbs)	8 air-to-ground rockets; 4 × .20 cannons and could carry 900 kg (2,000 lbs.) of bombs	2 × 250 or 500 lbs (225 kg) bombs OR 2 × .40 mm Vickers machine guns	2 underwing × 20 mm cannons; 2 x 7.62 mm machine × and 1 hub × 20 mm MG cannon	4 × 20 mm cannons; 2 × 13 mm machine guns; 1 × 250 kg (2 × 550 lbs) bombs