

## The Air and Space Hall

A guide for teachers

The Air and Space Hall occupies the former Lower Campfield Market Hall built in 1876. The building became the City Exhibition Hall in about 1900 and opened as the Air and Space Museum in May 1983. This became part of the Museum of Science and Industry in December 1985.

### What's in the gallery

The ground floor of the Air and Space Hall contains the Museum's aviation collection, a 30-seat planetarium and the *Morphis* simulator. Vehicles from the Museum's road transport collection are temporarily housed alongside the aircraft.

### Using the gallery

There is no pre-set route through the gallery. Toilets are on the ground floor.

### National Curriculum

The gallery is relevant to the following:

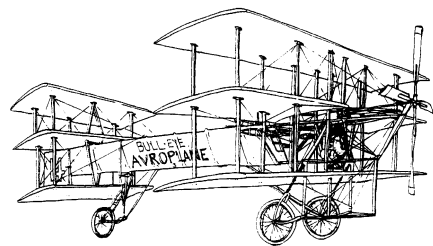
- Science (Space/Forces),
- Design and technology,
- History.

### Aviation

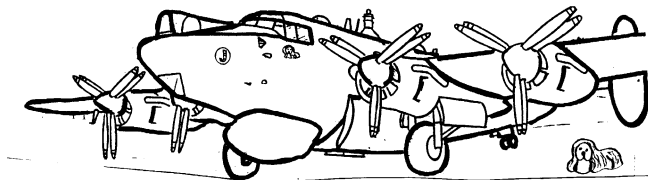
The collection focuses on the aviation industry in Manchester and the North West of England from the pioneering days of AV Roe and the Avro Company, through to later civilian and military aviation. Exhibits also highlight links between early twentieth century motor car and aircraft production in Manchester.

### Key Exhibits

- Roe Triplane 1, 1909  
A replica of the first all British powered aircraft to fly. Designed, built and flown by Alliot Verdon Roe, a doctor's son from Patricroft, near Eccles. The Triplane was covered with brown paper, made from bicycle parts and powered by a small motorbike engine. It flew about 36.5m (the length of the Avro Shackleton wing from tip to tip – see below).
- Avro 504K, 1930  
In 1910 A V Roe set up A. V. Roe & Co. Ltd (Avro), the world's first company dedicated solely to the manufacture of aircraft (now part of BAe Systems). The Avro 504 was designed in 1913 and used as a military reconnaissance aeroplane, long-range bomber, anti-Zeppelin fighter and training aeroplane. After the First World War, large numbers of military surplus Avros became available. 504Ks were used for the first scheduled airline service in May 1919 from Manchester to Blackpool and Southport. The 504 also gave many people their first experience of flying, as 'joyriding' became fashionable. The aeroplane on display was assembled from spare parts.



- Avro Avian, 1928  
Designed to sell to civilian owners and flying clubs. In 1928 Bert Hinkler, the Avro test pilot flew an Avian prototype to Australia in order to attract publicity.
- DH 89a Dragon Rapide, 1935  
Designed by the De Havilland aircraft company the Rapide can carry eight passengers and has a range of up to 520 miles. It was the first commercial aeroplane to land at the new Manchester Airport in 1938.
- Hawker Siddeley Trident 3B, 1971  
The Trident was a 180-seat passenger jet. The last British Airways Trident flew in 1986. The exhibit can be accessed from the balcony and consists of the flight deck and the first part of the passenger cabin. A video describes the history of the Trident.
- English Electric P1A, 1955  
Built at Warton, near Preston as a prototype, this type of aeroplane was the first British aeroplane to fly faster than the speed of sound in level flight.
- Supermarine Spitfire FRXIVe, 1945  
A Mark 14 armed reconnaissance aeroplane. A type used between 1946 and 1948 by 613 (City of Manchester) Squadron of the RAF at Manchester Airport.
- Avro Shackleton AEW2, 1954 (Dougal)  
The largest aircraft in the Air and Space Hall. Built at Woodford near Stockport the Shackleton was based on the design of the World War Two Lancaster Bomber. Initially developed as a maritime reconnaissance bomber to hunt submarines, the Shackleton was modified in 1972 to become an Airborne Early Warning (AEW) aeroplane with the task of locating attacking aircraft or missiles. The aircraft last flew in 1982.



- Avro 707A, 1949  
A one-third scale model built at Chadderton to provide research data for the development of the Avro 698 Vulcan delta wing jet bomber.  
Additional flight-related exhibits on the gallery include the following
- Aircraft engines.
- Leisure flying:  
The 'Flying Flea', a 1935 self-build aeroplane.  
Volmer VJ23, a 1977 hang glider with engine, which was the first to fly across the English Channel.  
Socata Rallye, a 1959 design for a light aircraft.  
Wallis-Bensen autogyro, 1959.
- Military aircraft:  
A rocket propelled Japanese kamakazi plane, 1945.  
Bristol Belvedere helicopter, 1960.

## Road Transport

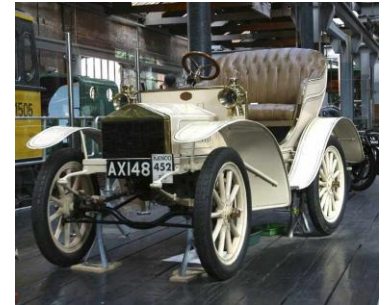
Exhibits include bicycles, motor cycles, horse-drawn carriages and motor cars. The latter are from the pre Second World War motor manufacturing industry in the Manchester area.

### *Key exhibits*

- 1909 Crossley 40 horsepower Limousine

This is the oldest Crossley motor car in existence. The Crossley Brothers were manufacturers of stationary engines but set up Crossley Motors in 1904 to build high-quality cars. They were the last motor car manufacturers in Manchester when they stopped making cars in 1937. Two vehicles from the 1920s and 1930s are also on display – see below. The company also built buses, goods and military vehicles and had interests in aviation through ownership of the Avro company.

- Rolls Royce 10 horsepower 2 cylinder car, 1905 (right)
- Royce first met Rolls at the Midland Hotel in Manchester during 1904 and set up Rolls Royce in 1905. The company moved to Derby in 1907. Manchester built Rolls Royce's are consequently rare and this is the oldest on public display.



- Imperial car, 1904

The Imperial company was set up by William Turner, a Stretford cycle shop owner. The company manufactured cars in Manchester from 1900 to 1912. The body was made by the Cockshoot company.

- Cockshoot Sociable Carriage c.1895 & Cockshoot Gig, 1900

Joseph Cockshoot started a coach-building company in Manchester in 1844. As the motor car replaced horse-drawn vehicles, the company developed a business building custom-made motor car bodies in the years before the Second World War.

- Royal Ruby Motorcycle sidecar combination, 1916

The Royal Ruby Company ceased trading in 1932. This motorcycle combination was part of an order placed by the Imperial Russian Army but not delivered because of the revolution in 1917.

- DOT Motorcycle, 1924

DOT (or Devoid of Trouble) motorbikes were manufactured from 1903 until the 1970s. The company made both road and scrambling bikes and is still in business making parts. The motor cycle is in an unrestored condition

- Crossley Shelsley car 1925 & Crossley Regis car, 1935

- Harper Runaround, 1923

A powered two-seater three-wheeled vehicle. This is displayed adjacent to two Sinclair C5 electric/pedal vehicles from the 1980s.