# Welcome

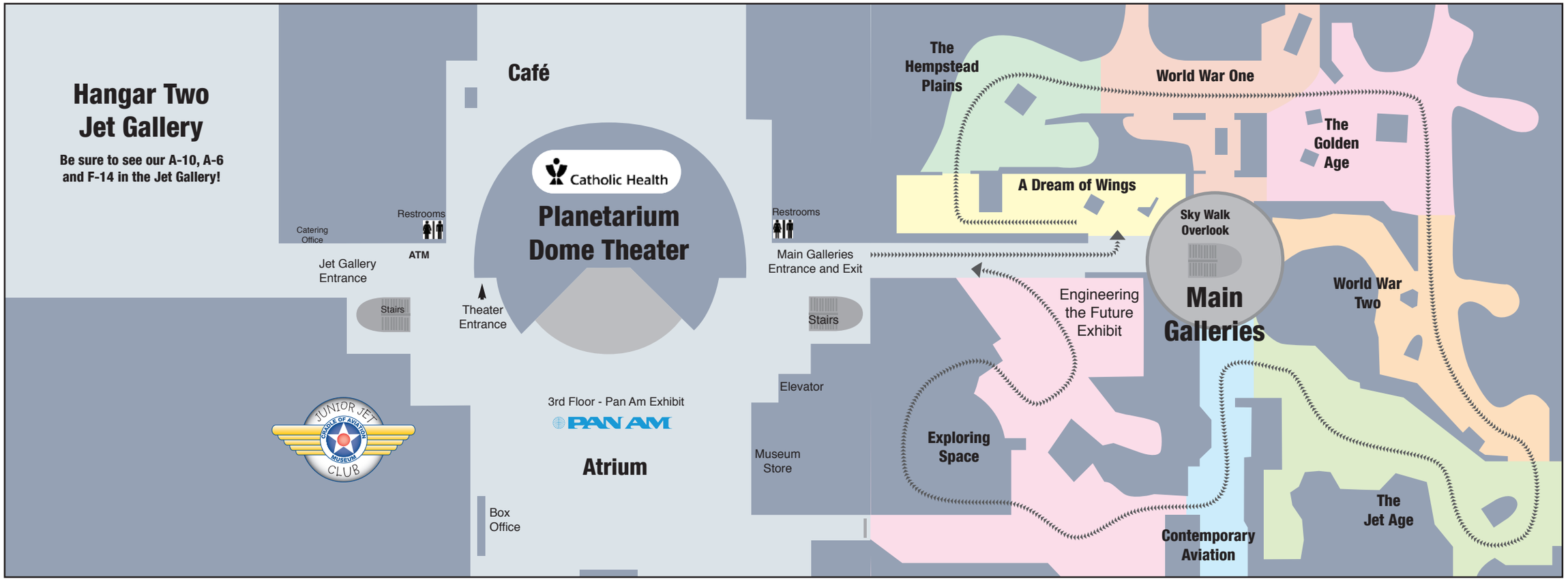
Thank you for coming to the Cradle of Aviation Museum. We hope you enjoy your visit and time with us.

## SUMMER OF ENGINEERING

**Engineering Trail**
Find the artifacts in each gallery that relate to the technological innovation - see reverse side!

**Cities of the Future Movie** (Separate admission required)
Follow a civil engineer on his journey to forge a brighter more sustainable future!

**Engineering the Future Exhibit** (Free, in the space gallery)
Learn about flying cars, drones and future city technology and transportaion systems.




## MUSEUM HOURS

**Hours**
Tuesday-Sunday, 10am-5pm

## CONTACT

**General Information:** (516) 572-4111
**Group Reservations:** (516) 572-4066
**Catering & Corporate Events:** (516) 572-4063

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# Aerospace Engineering Trail

Find the artifacts in each gallery that relate to these technological innovations!

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**Dream of Wings Gallery**

The Gasoline Engine: This engine was lightweight yet powerful enough to spin the propellers, helping planes to take off and fly. *Engineering Principle: Internal combustion engines convert fuel into mechanical energy, which drives the propeller.*

Wright Brothers' Airplane Control System: This system allowed pilots to control the plane’s direction and attitude, making it possible to steer in the sky. *Engineering Principle: Three-axis control (pitch, roll, and yaw) allows precise maneuvering of the aircraft.*

**The Hempstead Plains Gallery**

The Monoplane: A single-wing design made planes faster and easier to build compared to earlier multi-wing designs. *Engineering Principle: Aerodynamics of monoplane wings reduce drag, improving speed and efficiency.*

The Air-Cooled Engine: This engine design got rid of heavy water-cooling systems, making planes lighter and more efficient. *Engineering Principle: Heat dissipation through fins allows the engine to stay cool without the need for heavy coolant systems.*

**World War One Gallery**

The Synchronizer Gear: This clever mechanism made it possible for pilots to shoot bullets through the spinning propeller without hitting it. *Engineering Principle: Timing mechanisms synchronize the firing of the gun with the position of the propeller blades.*

The Airplane Stabilizer (Autopilot): This system helped keep planes flying straight and level without constant input from the pilot. *Engineering Principle: Gyroscopic stabilization uses sensors and controls to maintain steady flight.*

**The Golden Age Gallery**

Metal Construction: Using metal made airplanes stronger and better able to withstand harsh weather conditions. *Engineering Principle: Metal alloys provide superior strength-to-weight ratio and durability compared to wood.*

Retractable Landing Gear: This feature allowed landing wheels to tuck away during flight, reducing drag and allowing planes to fly faster. *Engineering Principle: Streamlining reduces aerodynamic drag, improving fuel efficiency and speed.*

**World War Two Gallery**

Folding Wings: These wings could fold up, allowing more airplanes to fit on aircraft carriers. *Engineering Principle: Hinges and locking mechanisms enable compact storage without compromising structural integrity.*

Bombsights: These early mechanical computers helped pilots aim bombs more accurately by calculating the best release point. *Engineering Principle: Optical and mechanical systems compute trajectories based on speed, altitude, and target position.*

**The Jet Age Gallery**

The Jet Engine: This powerful engine allowed planes to fly much faster and made air travel safer. *Engineering Principle: Jet engines generate thrust through high-speed exhaust gases, utilizing the principles of Newton's third law of motion.*

Helicopters: These aircraft could take off and land vertically, making them incredibly versatile for many different uses. *Engineering Principle: Rotating blades generate lift through aerodynamic forces, enabling vertical takeoff and landing.*

**Aviation Today Gallery**

Radar for Air Traffic Control: Radar helps keep many airplanes safely separated while flying in the same area. *Engineering Principle: Electromagnetic waves detect and locate objects, providing real-time data on aircraft positions.*

Flight Data Recorder: This device records flight information, helping investigators understand and prevent future accidents. *Engineering Principle: Data logging and storage systems capture critical flight parameters for analysis.*

**Space Gallery**

Liquid Fuel Rockets: These rockets can be controlled more precisely, making space travel more efficient. *Engineering Principle: Liquid fuel combustion provides adjustable thrust, allowing better control of the rocket's trajectory.*

Flight Computers: Onboard computers quickly calculate flight details, ensuring greater accuracy and safety in space missions. *Engineering Principle: Digital systems process complex calculations in real-time, enhancing navigational precision.*

**Engineering Exhibit**

Composite Construction: Using advanced materials makes planes lighter, stronger, and easier to build. *Engineering Principle: Composite materials combine different substances to maximize strength and minimize weight.*

Electric Aircraft: These planes are lighter and simpler to operate, offering a glimpse into the future of aviation. *Engineering Principle: Electric propulsion systems use batteries and electric motors, reducing mechanical complexity and emissions.*

**Hangar Two - Jet Hangar**

Variable Wings: These wings can change shape, providing better control at both slow and high speeds. *Engineering Principle: Adaptive wing configurations optimize aerodynamic performance for different flight conditions.*

Ejection Seats: These seats allow pilots to escape quickly from a crashing aircraft, enhancing safety. *Engineering Principle: Pyrotechnic systems and rocket motors provide rapid ejection and parachute deployment for pilot safety.*