



Welcome

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

ENGINEERING TRAIL

Engineering Trail

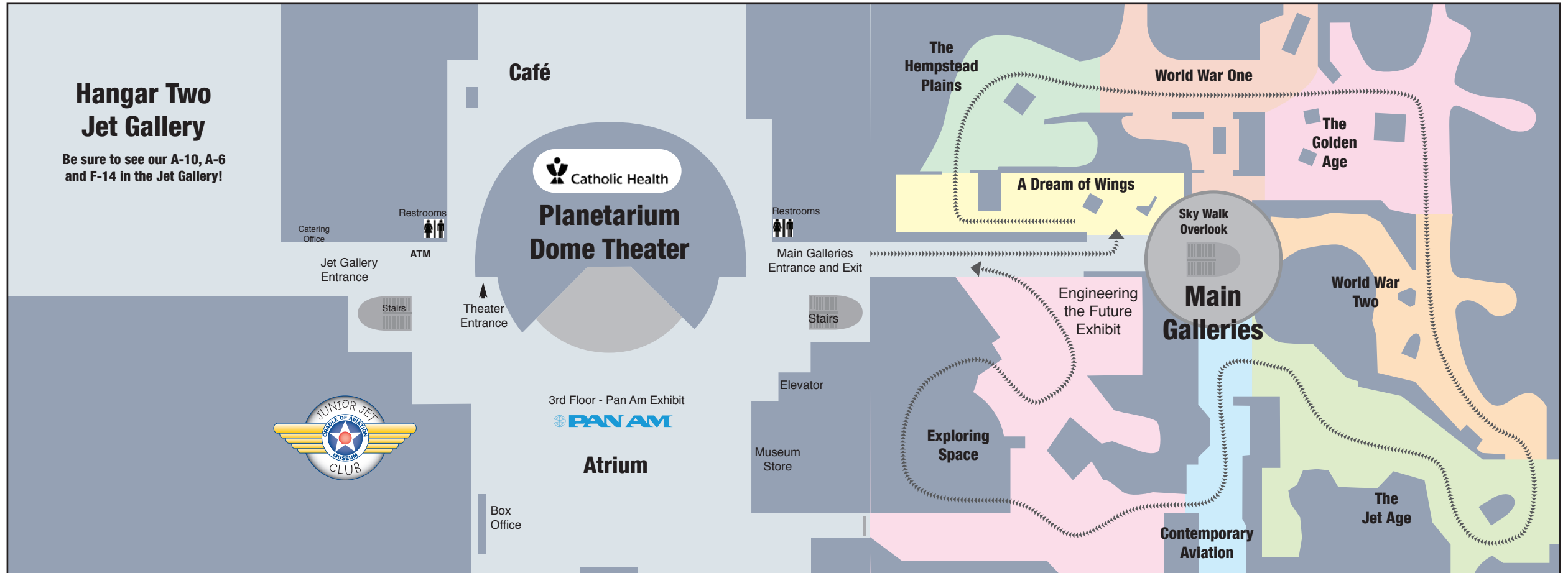
Find the artifacts in each gallery that relate to the technological innovation - see reverse side!

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 transportation 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!

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.*