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Activity 4 – Listening

Script

Aerospace engineering is one of the most exciting branches of engineering because it focuses on the design, development, testing, and maintenance of vehicles that fly. These include aircraft that travel through the Earth's atmosphere and spacecraft that operate beyond it. Aerospace engineers use knowledge from many different subjects, including mathematics, physics, computer science, and materials engineering, to solve technical problems and improve the safety and performance of flying vehicles.

Aerospace engineering is usually divided into two main areas. The first is **aeronautical engineering**, which deals with aircraft that fly within the Earth's atmosphere. These include commercial aeroplanes, military aircraft, helicopters, drones, and even some experimental vehicles. Aeronautical engineers work on improving fuel efficiency, reducing noise, increasing passenger safety, and developing new technologies that make flying more environmentally friendly.

The second area is **astronautical engineering**, which focuses on vehicles that travel into outer space. These include rockets, satellites, space probes, and spacecraft used for scientific research or human space missions. Astronautical engineers must design systems that can operate in extremely difficult conditions, including very high speeds, extreme temperatures, radiation, and the absence of air.

Understanding the forces that act on an aircraft is an important part of aerospace engineering. Four main forces affect every aircraft during flight. **Lift** is the upward force produced by the wings that allows the aircraft to stay in the air. **Weight** is the downward force caused by gravity. **Thrust**, generated by the engines, moves the aircraft forward, while **drag** is the resistance created by the air that slows the aircraft down. Engineers carefully design aircraft so that these forces remain balanced during different stages of flight.

Today, aerospace engineers work on projects that were impossible only a few decades ago. They develop reusable rockets, design satellites that provide communication and weather information, create unmanned aerial vehicles for research and rescue operations, and contribute to international space missions. Many engineers are also working on sustainable aviation by developing cleaner fuels, lighter materials, and more efficient engines that reduce environmental impact.

Aerospace engineering plays an important role in modern society. It makes air travel safer, supports scientific discoveries, improves global communication, helps monitor climate change, and allows humans to explore space. As technology continues to advance, aerospace engineers will continue to develop innovative solutions for the future of aviation and space exploration.