Research Assessment #11

Date: November 17, 2023

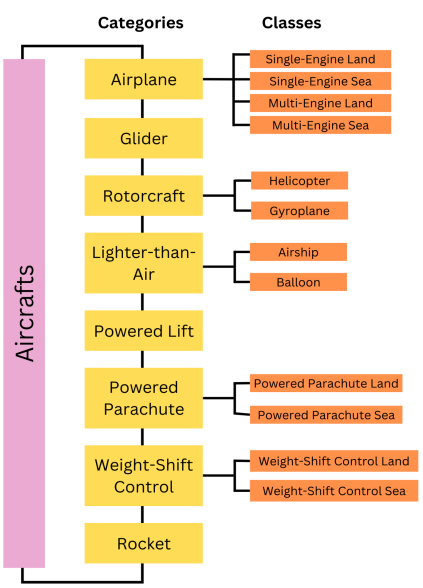
Subject: Airplane Types

MLA citation(s):

Pilot Institute. "Aircraft Categories, Classes, and Types: Pilotinstitute." *Pilot Institute*, 20 Aug. 2023, pilotinstitute.com/category-class-and-type-of-aircraft/.

Assessment:

I decided that if I was going to keep studying planes, I might as well understand how the different types of them are organized. I researched and annotated an article by a Pilot Institute, a company that provides online training for pilots looking to obtain an FAA(Federal Aviation Administration) certificate. They described how airplanes are broken down into categories, classes, and types. With that information, I designed a chart with all categories and classes the FAA and other aviation organizations use to describe airplanes. I'll explain those three topics accordingly but just remember, categories are the broadest, then classes, and under them are types.



The Categories classifications refer to airplanes that have similar intended use and operating environments. Here, there are 8 of them. First is an airplane which is the typical commercial aircraft that is engine-driven, fixed-winged (wings that remain in the same position throughout flight), and heavier-than-air. Second, a Glider is designed to fly without an engine. Think of a paper airplane or a paraglide. Next is a rotorcraft which uses rotating blades(instead of a fixed wing) to generate

lift. Then there is a Lighter-than-air aircraft which uses lighter-than-air gas to help it stay or hover in a certain position in the air. Fifth, we have a powered lift aircraft that is capable of vertical takeoff and landing. The majority of aircraft within this category are drones however the functionality of it depends on the engine-driven devices like propellers. A powered parachute is exactly that- a parachute with an engine or propeller attached to it. A note to keep in mind is that the categories with "powered" in front of them mean that the wings are flexible and aren't in position till the engine powers it to flight. Weight-shift control means that movements in the pilot can cause changes in the aircraft's direction. Last but not least, rockets are the aircraft which use the rocket engine for propulsion. The rocket engine expands the gas it intakes to thrust forward.

Aircraft classes are sub-classifications of categories based on design and performance characteristics. These are the boxes colored orange on the chart. Types, which is the third classification, refers to a specific make and model of an aircraft. One of the most common is the Boeing 737 within Airplanes. Though it is irrelevant to our purpose, pilot licenses certify their knowledge of distinct Types of planes so it gets really specific.

Now that we have a good taste of all the types, classes, and categories of aircraft, I'd like to look a little further into the Airplane category. Within it, there are four classes: Single-Engine Land, Single-Engine Sea, Multi-Engine Land, and Multi-Engine Sea. The first two Single-Engine means that, as the name suggests, the plane relies on a singular engine making it suitable for shorter flights of less than 300 miles. On the other hand, Multi-Engine planes have more than one engine and can allow for longer flights.

This article developed my understanding of plane types and the requirements a plane needs to become an aircraft which proves helpful in my design choices as I design my digital model. One issue however is the fact that I didn't get a full understanding of the subdivisions of

the airplane category, but I plan to do my own side research to understand those aspects. Besides that, I'm satisfied with the amount of information I gained and the easy graspability of the article especially since I am hardly aware of the specific models of airplanes. Now I realize the Boeing 737 is the most common model for commercial airplanes so I'm using that as my model plane's blueprint.