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How a turbojet works

NASA's official path through the simplest gas turbine, in that page's own words.

"The first and simplest type of gas turbine is the turbojet." Large amounts of surrounding air are brought into the engine inlet. "In England, they call this part the intake, which is probably a more accurate description, since the compressor pulls air into the engine."

Stage (NASA, "Turbojet Engines")	Official wording
Compressor	"The compressor acts like many rows of airfoils, with each row producing a small jump in pressure. A compressor is like an electric fan. We have to supply energy to turn the compressor."
Burner	"In the burner a small amount of fuel is combined with the air and ignited." "In a typical jet engine, 100 pounds of air/sec is combined with only 2 pounds of fuel/sec. Most of the hot exhaust has come from the surrounding air."
Turbine	"The turbine works like a windmill." It turns the compressor through the central shaft.
Nozzle	"Because the exit velocity is greater than the free stream velocity, thrust is created."

A second official page, kept apart

NASA's student "Engines" page gives its own figures — compression "3 to 12 times," about "1,100°F to 1,300° F," and an afterburner "increase of about 40 percent in thrust at takeoff." Those figures are not rewritten into the technical sentences above.

A short quiz

1. In a typical jet engine, according to NASA, how much fuel is combined with 100 pounds of air a second?
2. What does NASA liken the turbine to?
3. Why, according to NASA, might "intake" be a more accurate word than "inlet"?

Answers. 1. Only 2 pounds of fuel a second. 2. A windmill. 3. Because the compressor pulls air into the engine.

Wording from NASA Glenn, "Turbojet Engines" and the student "Engines" page, last updated 13 May 2021. Checked 17 November 2026.
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