

EIGHT TRAITS OF AN ENGINEER

The Necessary Four

These traits are usually (stereotypically) associated with engineering. All engineers must have them, and the typical engineering education expects them.

ENGINEER'S
playground

engineerplayground.com
Webinars | Curriculum | Consulting

The Four That Enhance

These traits complement the Necessary Four. They are the reason engineering opens doors to other jobs. The more mastery engineers have of these, the more successful they tend to be.

Interest in Science

Engineers need to understand how nature works, which is why physics, chemistry, and biology are required courses for many engineering specialties. Science methods are just as important as science knowledge. This includes developing logical observation and designing experiments to make sure their ideas are grounded in reality.

Aptitude in Math

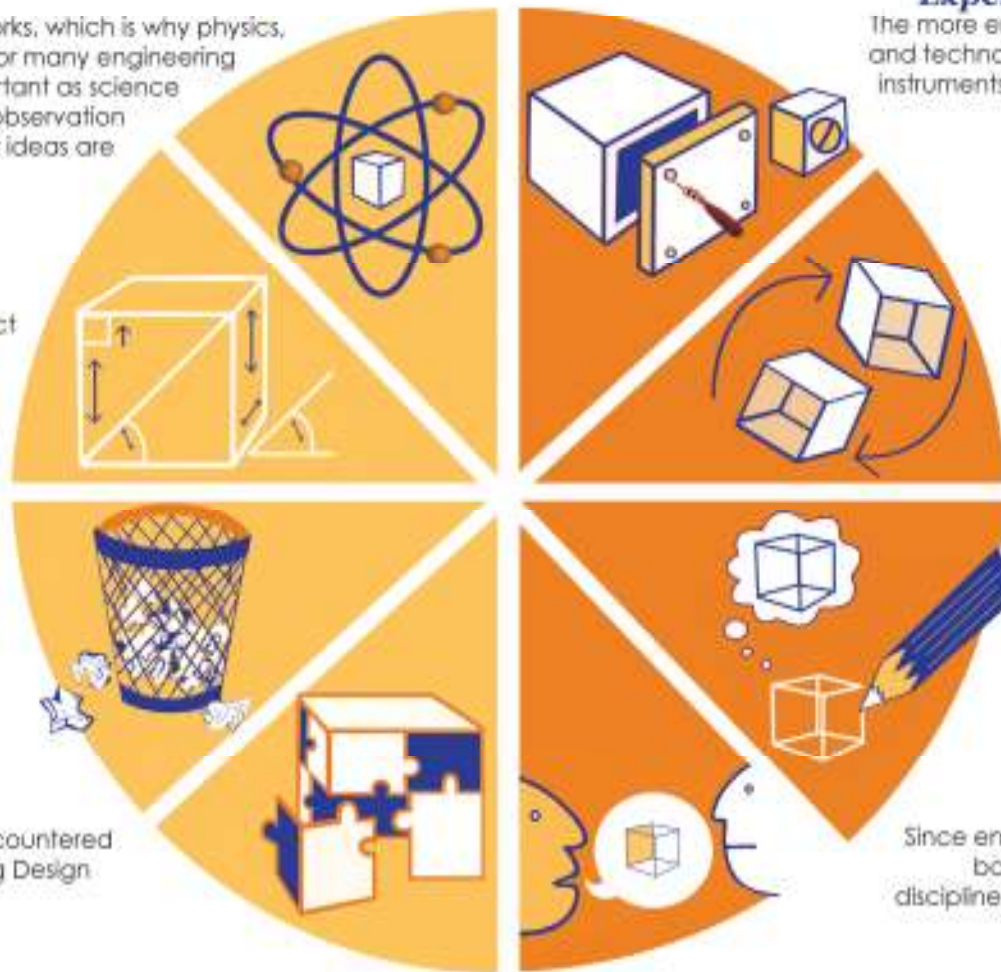
Engineers need to use logic, deal with abstract concepts, find patterns, and manipulate numbers, shapes, and space. Math develops these abilities, and mastery of these skills help engineers make use of nature, make decisions, and predict outcomes of actions.

Perseverance

Engineers need to stick to a problem until it is solved because nothing is ever simple and projects always take longer than expected.

Problem Solving

Engineers efficiently tackle each problem encountered using a systematic approach (the Engineering Design Process) rather than random trial-and-error or purely "gut" decisions.



Experience with Tools and Technology

The more engineers know the ins and outs of available tools and technology (e.g., materials, machinery, power sources, instruments, equipment, electronics, computers), the more success they have in turning ideas into reality.

Ability to Think Spatially

Spatial abilities include rotating objects in one's head, placing objects in space, seeing their relations, and estimating distances. Research shows that these abilities are some of the best indicators for insightful research, patents, and general success in science and engineering.

Creativity

Engineers need to be able to imagine things that don't yet exist. The ability to brainstorm, to come up with solutions within constraints, and to "get unstuck" are honed by creative activities such as drawing, sculpting, and writing poetry.

Ability to Communicate

Since engineers work in teams with people from different backgrounds (business, science, other engineering disciplines), written and oral communication about ideas, questions, and problems is essential.