

Engineering Mindset:

Working effectively in teams



Teamwork skills are highly valued in engineering. Generating successful solutions to problems is strengthened by a group effort that involves many different people and ideas. The expertise of a variety of people—clients, community members, and others with technical, aesthetic, safety or political knowledge is often called upon. Developing solutions also requires collaboration by engineers from a number of fields—for example, mechanical, electrical, materials, and acoustical engineers might all collaborate to design a hearing aid. Assembling teams with members who bring diverse experience, approaches, and knowledge can yield robust and innovative solutions.

The creation of engineering products and knowledge is a social endeavor—people need to work together and communicate productively in groups. Team members share, plan, critique, and combine ideas and feedback. This often requires negotiating with colleagues to reach consensus. Thus, learning how to interact both within a group and between groups is an important engineering skill. Part of teamwork involves communicating through a variety of media—oral and written text, diagrams, mathematics, and models, for example—to a variety of audiences.

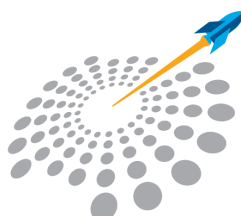
Youth need experiences and scaffolds to learn to work effectively in teams. Younger children start by working in pairs. As they get older, they can start to work in small, and then larger and more complex teams. By working in teams during engineering activities, youth develop their abilities to consider other people’s perspectives, argue from data and evidence, compromise, and select the most promising ideas. Educators can foster these traits by highlighting how teams that generate a diversity of ideas have more possibilities to explore and more potential for one to be successful.

Educators should also strive to create learning environments in which youth feel part of a cooperative engineering community. They are expected to work together and share their designs and knowledge. Although some youth may be naturally competitive, creating environments that celebrate collaboration are generally more inclusive.

Youth may also benefit from scaffolds that help them develop into productive team members. These might include discussions of norms for groupwork, instructional strategies that allow (or require) all team members to contribute, and sentence frames or starters that help youth provide constructive feedback to each other.

Becoming a good team member, like becoming a good engineer, takes practice. As youth recognize the benefits of working in a team and develop strategies to contribute as a productive team member, they will not only engineer better solutions but also develop an important

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MILLION GIRLS MOONSHOT