WHAT TYPE OF ENGINEER WOULD YOU BE?

In this icebreaker participants brainstorm interesting project ideas for engineers working together.

Time needed

10-15 minutes

Materials

You will need:
- Slips of paper with the names of 2 types of engineer (see page 3-5 for examples)

Thinking ahead

Ideally, you want one slip of paper with the engineering career names for every 2 people in your group. With larger gatherings, you can assign more that 2 people per group, but you may need to increase the amount of time allowed for discussion.

For groups with limited knowledge of engineering, you can use slips of paper that include examples of projects that each kind of engineer might do.

Steps

1. Divide the group into pairs. Each pair draws a slip of paper.

2. Take 2 minutes for each pair discuss the types of engineering on their slip of paper and decide which one of them they would like to be. Encourage them talk through how their personal experiences match up with both types.

3. Then they should take 3 minutes to brainstorm on a project that these 2 types of engineers might work on together.

4. Gather the slips of paper and shuffle the groups so that everyone has a new partner.

5. Have each pair draw a slip of paper and repeat steps 2 and 3. If they happen to draw the same engineering careers that they discussed before, challenge them to think of reasons why they might want to try the type they did not choose before.

6. Repeat steps 4 and 5. The goal is to meet and brainstorm project ideas with 3 different people.

7. If you have time, ask each final pair to share a project idea with the entire group.

Applications

Engineers often work together with engineers in other fields and professions. This activity is a good way to introduce how any engineering career can provide opportunities to work on a wide variety of projects.

Software Engineer	Chemical Engineer
Electrical Engineer	Environmental Engineer
Biomedical Engineer	Aerospace Engineer
Mechanical Engineer	Materials Engineer
Industrial Engineer	Civil Engineer
Computer Engineer	Earth resources Engineer

Software Engineer

✶ Create software that detects brain tumors earlier.
✶ Develop user-friendly blogging software.
✶ Design faster image-handling features in digital cameras.
✶ Test the security of a new video-sharing website.
✶ Predict the safety of flight control software for passenger aircraft.

Chemical Engineer

✶ Design environmentally friendly cleaning products
✶ Develop chemotherapy that has fewer side effects
✶ Turn seawater into drinking water
✶ Develop ways of mass-producing vaccines to ward off epidemics
✶ Reduce pollution by developing cleaner sources of energy

Electrical Engineer

✶ Invent better MRI scanners, allowing doctors to see even more clearly inside a patient's body
✶ Create special effects for the movies
✶ Design cell phones that work more reliably and have more features
✶ Develop artificial retinas for the blind
✶ Work on satellite communications systems that connect people around the world

Environmental Engineer

✶ Assess a project's potential effect on endangered species
✶ Design methods of accurately measuring acid rain, car emissions, and ozone depletion
✶ Work with large industries to reduce their air pollution emissions to acceptable levels
✶ Invent better ways of recycling paper, plastic, and glass

Biomedical Engineer

✶ Create a prosthetic leg designed especially for children
✶ Grow tissues that help repair damage from heart attacks
✶ Protect the environment by producing organic fertilizer
✶ Grow vegetables that contain more nutrients
✶ Develop cancer treatments that don't cause debilitating side effects

Aerospace Engineer

✶ Improve the safety of the space shuttles
✶ Build a more spacious airliner
✶ Create satellites that detect drought around the world
✶ Design robots that collect samples on other planets, revealing insights about our galaxy
✶ Develop parachutes, using new materials to improve their performance

Mechanical Engineer

✳ Design "smart" toys for kids
✳ Develop cars that are more fuel efficient
✳ Produce hypoallergenic air conditioning for hospital operating rooms
✳ Create prosthetic hands that allow a person to type and write
✳ Build aerospace vehicles to trek across planets and moons, collecting samples

Materials Engineer

✳ Invent clothing that repels mosquitoes
✳ Enhance the handling ability of skis and snowboards with more flexible materials
✳ Develop nano-sized polymers to help repair shattered bones
✳ Help burn victims heal faster with artificial skin grafts
✳ Create stretchable material for clothing that returns to its original shape

Industrial Engineer

✳ Prevent stress and injury in workers by designing effective workspaces
✳ Determine what work functions are best performed by people and which ones should be automated
✳ Design ergonomic office space
✳ Make sure that an international hotel chain offers the same services and conveniences no matter where it's located

Civil Engineer

✳ Ensure safe drinking water by managing a community's water reservoir
✳ Develop an art museum that provides state-of-the-art protection for paintings
✳ Cut down on airport delays by designing a better runway system
✳ Design the structure of one of the world's tallest skyscrapers
✳ Build cheap, sturdy shelters for victims of hurricanes and flooding

Computer Engineer

✳ Design a feather-light laptop
✳ Develop the necessary systems for running the latest electrical car
✳ Oversee the computer network for a telecommunications company
✳ Invent a brand-new video game
✳ Develop the control systems for a large-scale robotic manufacturing plant
✳ Create a new operating system for personal computers

Earth resources Engineer

✳ Devise methods to improve and oversee drilling or mining operations
✳ Work with multiple stakeholders to restore previously damaged environments.
✳ Design safe, economical, and environmentally sound underground construction techniques
✳ Create new techniques for processing or recycling earth resources
✳ Design mines