



Next Engineers Academy Unit 3 Student Reflection

STUDENT REFLECTION

1. Answer the following question on your own in your *Academy journal*. You can refer back to your copies of the *Engineering Design Process* and *Engineering Habits of Mind* handouts you received in Unit 1 if you need to. You will be given about **15 minutes** to answer these questions.
 - a. Which step in the **engineering design process** did you find the most difficult during this challenge?
 - b. How has your **perception** of yourself as a future engineer changed since starting the Engineering Academy?
 - c. Rank how well you think you **understand** each of the six engineering habits of mind from 1 = least understood to 6 = most understood. How has your ranking changed from the Unit 2?
 - d. Rank your **comfort level** with each of the six engineering habits of mind from 1 = least comfortable to 6 = most comfortable. How has your ranking changed from Unit 2?
 - e. Describe in your own words what you understand by the **Creative Problem Solving** and **Adapting** engineering habits of mind.
 - f. Describe a time during this challenge when you think you practiced the **Problem Solving** engineering habit of mind.
 - g. Describe a time during this challenge when you think you practiced the **Adapting** engineering habit of mind.
 - h. Describe a time during this challenge when you saw a team member practice the **Creative Problem Solving** engineering habit of mind. When did they work collaboratively with other people and use creative and innovative thinking to come up with new ideas and solutions?
 - i. Describe a time during this challenge when you saw a team member practice the **Adapting** engineering habit of mind. When did they change an existing product, material or approach to fulfil another purpose? When were they willing to modify or adjust their ideas or approach to changing conditions or requirements?
2. Now get into your design challenge team and discuss the following questions. Try and take notes of any helpful points or insights in your *Academy journal*. Again, you will have about **15 minutes**.
 - a. Discuss with your group what the **Creative Problem Solving** and **Adapting** engineering habits of mind mean to you.
 - b. As a team, how well do you think you practiced the **Creative Problem Solving** engineering habit of mind during this challenge? When do you think you worked collaboratively to combine your different perspectives and use creative and innovative thinking to come up with a wide range of new ideas and solutions without judgment? When were you willing to challenge your assumptions and experiment with new ideas or try things that had not been tried before?



ACADEMY JOURNAL

While doing this reflection you are strongly encouraged to write your thoughts and insights down in your Academy journal. Having to express your thoughts in writing helps you to slow down, focus your attention and think more deeply. It helps make your thinking more reasoned and deliberate and less reactive.

As the philosopher Mortimer Adler said, “the person who says he knows what he thinks but cannot express it usually does not know what he thinks.”



- c. What other **actions, skills, or strategies** do you think are important when creatively problem-solving in engineering?
- d. How do you think practicing the Creative Problem Solving engineering habit of mind **helped you** in this challenge? What specific benefits can you recall?
- e. As a team, how well do you think you practiced the **Adapting** engineering habit of mind during this challenge? When did you use an existing material or product to do things differently or use old things in new ways? When did you change your thinking or assumptions based on new circumstances? When did change your approach based on a test and see failure as just an opportunity to learn more?
- f. What other **actions, skills, or strategies** do you think are important when adapting in engineering?
- g. How do you think practicing the Adapting engineering habit of mind **helped you** in this challenge? What specific benefits can you recall?

