



Next Engineers Academy Unit 5 Student Reflection

STUDENT REFLECTION

Time	Academy unit	Group size	Activity Type
1 hour	Unit 5	-	Student Reflection

Activity Description

This activity gives students an opportunity to reflect on their experiences in unit 5, in particular with regard to what they learned completing the engineering design challenge.

Materials

You will need the following materials for this activity:

- A copy of the *Student Handout* for each student

Students will require their *Academy Journals* and a pen or pencil.

Preparation

1. Print out a copy of the *Student Handout* for this Unit 5 Student Reflection for each student. If you do not wish to make printed copies, you can project the questions onto a screen for the group.
2. If you are going to do team feedback, print out copies of the *Team Feedback Form* (last page in this document). Each student will require one copy of the form for each team member.
3. Step through the activity slowly in your mind imagining how you will arrange the room and how you will direct students during each part of the activity.



NOTES



What to do

1. Have students answer the following questions individually in their *Academy journals*. They can refer back to their copies of the *Engineering Design Process* and *Engineering Habits of Mind* handouts they received in Unit 1 if they need to. Give students about **20 minutes** to answer these questions.
 - a. How has your **perception** of yourself as a future engineer changed since starting the Academy?
 - b. Describe one way in which you think you have **grown and developed** in your ability to practice any of the engineering habits of mind.
 - c. What did you find **most difficult** about this design challenge? How did you respond to these difficulties? What could you do to keep improving in future?
 - d. Describe **at least ONE** thing you learned from each member of your design challenge team? How did this make you feel about the project and that teammate?
 - e. Describe your **own contribution** to your team's success. What do you think your most significant or important contribution was? What do you think you could or should do differently to contribute even more meaningfully to the next team in which you work?
2. Have students get into their design challenge teams to discuss the following questions. Give them about **25 minutes** for their discussions.
 - a. Share and discuss with each other your responses to questions **d** and **e** above.
 - b. Describe times during this challenge when you think members of the team practiced each of the engineering habits of mind.
 - c. Thinking about the challenge you have just completed, what would you like to change about how you worked together?
 - i. How could your team work more effectively and efficiently?
 - ii. How could you improve your communication?
 - iii. How could you improve your planning?
 - iv. How could you improve how you delegated and assigned tasks?
 - d. What were the most important lessons you learned about **managing a project including managing people, time, and resources**?
 - e. What were the most important lessons you learned about **creating and managing a budget**?
 - f. If you could do this challenge again, what would you like to change about the solution that you developed?
 - i. If you had more time and/or resources, what would you like to try?
 - ii. What would you change about how you developed and tested your functional prototype?
 - iii. Is there another completely different approach or solution you would like to try?
3. If you wish, print out and have students complete the evaluation form below for each of their team members. You can decide whether to make this feedback anonymous or not. Give students about **10 minutes** to complete these team member evaluations. When they are complete, take them in and then hand back each student's set of evaluation forms. Be sure to emphasize that receiving and processing feedback (positive and negative) is an important skill and that receiving this feedback is an opportunity for them to become better engineers.



ACADEMY JOURNAL

Require students to write their reflections in their Academy journals. Having to express your thoughts in writing helps you to slow down, focus your attention and think more deeply. It helps make your thinking reasoned 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."

Writing their reflections will help students to form and clarify their thoughts.



Team Feedback Form

This feedback form will allow you to provide honest feedback to each member of your team.

1. Enter the name of the team member.
2. Read each attribute and decide how often you think that it describes this member of your team according to the following scale. In your evaluation be fair and honest. Treat this as an opportunity to help the members of your team become better engineers.

1 = rarely | 2 = sometimes | 3 = mostly | 4 = always

3. When you are complete, hand the form back to your facilitator.

Team member:

Attribute	Rating
Dependable	
Willing to accept assigned tasks	
Contributed positively to assigned tasks	
Open to new ideas and constructive feedback	
Completed work on time or clearly communicated alternative arrangements	
Willingly helped others with their tasks when needed	
Completed their work accurately and correctly	
Produced work of a high quality that met or exceeded team expectations	
Worked productively with team members, treating them with respect and listening to their point of view	
Overall was a valuable member of the team	

