

Unit 8 Guide - Engineering is Reflective

Grade level: HS

Choose from: 3 lessons

Thread concentration: Red, Yellow, Blue, Green

Engineering Category:

2. Engineering analysis or partial design
3. Engineering design process
4. Engineering professional skills

Engineering Connection

- What is engineering?
- What does it mean to engineer?
- What is my identity as an engineer?
- How is engineering valuable to me?

Description/Summary

Students reflect on their designs, their identity, and the role of engineering in society.

Unit Overview

Students have an opportunity to reflect on their journey through their experience designing as engineers. Further, students reflect on their identities as engineers, and on the impact of engineering on society.

Learning Outcomes

Discover Engineering		
Iterate and evolve the definition of what it means to engineer and be an engineer.	E.A	a
Awareness of changing perspectives on one's current identities with respect to engineering through regular reflection.	E.B	a
Recognize the value of engineering for all regardless of one's potential career.	E.C	a
Engineering in Society		
Use systems thinking to propose and analyze the relationship between inputs, intention, and impacts of technology in society.	S.B	a
Recognize and investigate the world's greatest challenges and the role that engineering plays in solving these challenges (e.g., Engineering Grand Challenges, UN sustainability goals, etc.).	S.C	a
Integrate diverse disciplinary thinking and expertise to inform design solutions that add value to society.	S.D	a
Identify and analyze issues when bringing a solution to scale.	S.E	a

Engineering Professional Skills		
Apply strategies to collaborate effectively as a team.	P.A	a
Use various forms of communication (oral, written, visual).	P.B	a
Recognize when to use various communication tools based on audience.	P.C	a
Contribute individually to overall team efforts.	P.E	a
Key: (a) assessed during learning progression		

Misconceptions

Unit 8 only applies if a class has completed Unit 7.

Unit 8 is not necessary if time runs out at the end of the school year.

Teaching Challenges

Time will likely be crunched at the end of the year. Take care to adapt the lessons while still maintaining time for iteration and reflection.

The final portfolio for assessment of the E4USA course may be due before the end of the school year.

Related Lessons and Activities and Unit Schedule

Lesson Name	Lesson Description	Activity	Assessments
8.1: Reflecting on the role of engineering in society (1.25 hrs)	Teams reflect on the role of engineering in society and share with the class through a gallery walk.	<ul style="list-style-type: none"> ● Team discussions ● Class gallery walk ● Class debrief 	<ul style="list-style-type: none"> ● Gallery walk
8.2: Myself as an engineer (2 hrs)	Students debrief their experiences in this course, focusing on the self as an engineer.	<ul style="list-style-type: none"> ● Think-pair-share discussions on red thread topics 	<ul style="list-style-type: none"> ● Revised and forward thinking double-sided poster of “myself as an engineer” ● Compiled inspirational video ● Preparatory work for share-out with the larger school community at a showcase event
8.3: Share out to the larger school community (outside of class)	All members of the school community are invited to engage with the teams and learn about their final projects.	<ul style="list-style-type: none"> ● School showcase 	<ul style="list-style-type: none"> ● Various modalities of team share-outs