

A Unit 01: Intro to Engineering

Content Area: **Science**
Course(s): **Robotics A**
Time Period: **Marking Period 1**
Length: **3**
Status: **Published**

Standards

SCI.9-12.HS-ETS1-1	Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.
SCI.9-12.HS-ETS1-3	Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.
SCI.9-12.HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.

Enduring Understandings

- Engineering a successful product often requires a team of professionals
- A team that contains a variety of specialized knowledge, unique backgrounds and experience often have the most success when designing.
- The design loop is a critical process when developing a solution to a problem.
- A successful engineer will document all aspects of the development of an idea, from defining a problem all the way through to testing the final product.

Essential Questions

1. What does an engineer do?
2. What is something that you have used today that was designed by an engineer?
3. Why is classical mechanics such an important part of engineering?
4. How does having constraints placed on a design change the engineering process?
5. Why is making a prototype so important in the design process?
6. What have you learned from the iterative process?

Resources

- Unit Guide
- Paper
- Pencils

- Rulers
- Internet Access
- Dictionaries
- VEX Robotics Kit
- Computers with Autodesk Inventor
- Storage containers
- Online Resources