

A Unit 10: Lifting Mechanisms

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

- Passive assistance can be a very reliable and simple way of designing.
- A combination of movements/mechanisms is sometimes required for an effective design.

Essential Questions

1. How do degrees of freedom allow you to design a robot that is able to transfer motion as it manipulates game objects?
2. How does a linkage system allow a robot to score on a high goal in a game situation?
3. How does passive assistance provide your robot with a mechanical advantage?

Resources

- Unit Guide
- Paper
- Pencils
- Rulers
- Internet Access
- Dictionaries
- VEX Robotics Kit
- Computers with Autodesk Inventor
- Storage containers

- Online Resources