Unit: Technological Design Process	Concept: Technological Systems

Standard
- 3.5.9-12.LL Analyze the stability of a technological system and how it is influenced by all of the components in the system, especially those in the feedback loop.

Key Learning
- (LTTG) Students will be able to analyze a problem in its entirety while recognizing the subcomponents interacting with human-made and natural environments.

Unit Essential Question
- How can I analyze a problem in its entirety while recognizing the subcomponents interacting with human-made and natural environments?

Essential Question
- How do system components work together to achieve a desired goal?

Key Vocabulary
- Stability, Analysis, Interrelated, Influence, Component, Feedback, Loop, Automatic, Manual, and Control

Learning Experience
- Students who demonstrate understanding can analyze the stability of a technological system and how it is influenced by all of the components in the system, especially those in the feedback loop.
- Clarifying Statement: Automated control systems in a vehicle, for example, automatically detect and control the speed of the vehicle.

(Big Idea) Technology & Engineering Curriculum Framework Big Ideas
- A system is a group of interrelated components designed collectively to achieve a desired goal.

(SEP) Science and Engineering Practices
- Constructing Explanations and Designing Solutions - Design, evaluate, and/or refine a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria, and trade-off considerations.

(DCI) Disciplinary Core Ideas
- ETS1.C: Optimizing the Design Solution - Criteria may need to be broken down into simpler ones that can be approached systematically, and decisions about the priority of certain criteria over others (trade-offs) may be needed.

(TEP) Technology and Engineering Practices
- Making and Doing - Demonstrates the ability to regulate and improve making and doing skills.
- Systems Thinking - Designs and troubleshoots technological systems in ways that consider the multiple components of the system.

Terms

- (ETS) Engineering, Technology, and Applications of Science – Standards applicable across the Science, Environmental Literacy & Sustainability, and Technology & Engineering content areas.
- (LTTG) PDE Technology & Engineering Long Term Transfer Goals
- (Learning Experience) A learning experience refers to any interaction, activity, or other experience in which students acquire new understanding, knowledge, behaviors, or skills.
- (Big Idea #) PDE Technology & Engineering Curriculum Framework Big Ideas
- (SEP) PDE Science and Engineering Practices
- (DCI) PDE Disciplinary Core Ideas
- (TEP) PDE Technology and Engineering Practices