Unit: Multimedia Layout and Design	Concept: Needs and Wants

Standard
- 3.5.9-12.S Conduct research to inform intentional inventions and innovations that address specific needs and wants.

Key Learning
- (LTTG) Students will be able to apply investigation, imagination, innovative thinking, and physical skills to accomplish goals.

Unit Essential Question
- How can I apply investigation, imagination, innovative thinking, and physical skills to accomplish goals?

Essential Question
- How do needs and wants drive design?

Key Vocabulary
- Making, Research, Invention, Innovation, Need, and Want

Learning Experience
- Students who demonstrate understanding can conduct research to inform intentional inventions and innovations that address specific needs and wants.
- Clarifying Statement: Years of research led to the design and development of laser systems used in atmospheric studies and other applications (LiDAR or LADAR). This same type of laser system was then modified and reapplied to treat the buildup of plaque in the arteries through laser angioplasty (i.e., surgical repair of a blood vessel such as an artery).

(Big Idea) Technology & Engineering Curriculum Framework Big Ideas
- Design optimization is driven by criteria and constraints.

(SEP) Science and Engineering Practices
- Obtaining, Evaluating, and Communicating Information - Compare, integrate and evaluate sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a scientific question or solve a problem.

(DCI) Disciplinary Core Ideas
- ETS1.A: Defining and Delimiting Engineering Problems - Criteria and constraints also include satisfying any requirements set by society, such as taking issues of risk mitigation into account, and they should be quantified to the extent possible and stated in such a way that one can tell if a given design meets them.

(TEP) Technology and Engineering Practices
- Critical Thinking - Uses evidence to better understand and solve problems in technology and engineering, including applying computational thinking.

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