Grades 6–8

3.5.6-8.GG Technology and Engineering: Nature and Characteristics of Technology and Engineering

Students who demonstrate understanding can *create an open-loop system that has no feedback path and requires human intervention.*

Clarifying Statement: An example of an open-loop system is a light switch in a room. The electrical system has no feedback loop but requires someone to flip the switch (input) to send electrons to the bulb (process) and make light illuminate the room (output).

Assessment Boundary: N/A

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Technology and Engineering Practices (TEP)
Developing and Using Models Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems. • Develop a model to generate data to test ideas about designed systems, including those representing inputs and outputs.	**Developing Possible Solutions** • A solution needs to be tested, and then modified on the basis of the test results, in order to improve it. • Models of all kinds are important for testing solutions.	**Making and Doing** • Exhibits safe, effective ways of producing technological products, systems, and processes. **Systems Thinking** • Uses the systems model to show how parts of technological systems work together.

Pennsylvania Context: N/A

Pennsylvania Career Ready Skills: Identify and evaluate distractors that impact reaching ones' goals.

Connections to Other Standards Content and Practices

Standard Source	Possible Connections to Other Standard(s) or Practice(s)
PA Core Standards: Reading and Writing in Science and Technical Areas	CC.1.2.3.G: Use information gained from text features to demonstrate understanding of a text. CC.1.2.4.G: Interpret various presentations of information within a text or digital source and explain how the information contributes to an understanding of text in which it appears. CC.1.2.5.G: Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. CC.1.4.3.V: Conduct short research projects that build knowledge about a topic. CC.1.4.4.V: Conduct short research projects that build knowledge through investigation of different aspects of a topic. CC.1.4.5.V: Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic. CC.1.4.3.W: Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories. CC.1.4.4.W: Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources. CC.1.4.5.W: Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.

Standard Source	Possible Connections to Other Standard(s) or Practice(s)
PA Core Standards and Practices: Math	MP.1: Make sense of problems and persevere in solving them.
Integrated Standards for Science, Environment & Ecology, and Technology & Engineering Standards Grades K–12	N/A