



# Technological Systems At-A-Glance

**Intended Audience: Grade 8**

**Course Length: 18 weeks**

**Technological Systems** is intended to teach students how systems work together to solve problems and capture opportunities. A system can be as small as two components working together (technical system/device level) or can contain millions of interacting devices (user system/network level). We often break down the Macro systems into less complicated Microsystems to better understand the entire system. However, technology is becoming more integrated and systems are becoming more dependent upon each other than ever before. Electronic systems are interacting with natural (e.g., bio) systems as humans use more and more monitoring devices for medical reasons. Electrical systems are interacting with mechanical and fluid power systems as manufacturing establishments become increasingly automated. This course gives students a general background on the different types of systems with a concentration on the connections between these systems.

**Technological Systems, How They Work:** Investigate technological systems through their function, design, development, interaction, and maintenance. Systems included in this exploration include communications, construction, manufacturing, biomedical, and power energy.

- **Development of Systems:** Technological Systems are developed to meet specific criteria and must be able to function to complete the system's loop.
- **Issues and Impacts of Technological Systems:** Technology can have both positive and negative impacts on the environment and the economy.
- **Design of Technological Systems:** Technological systems are designed to meet a specific need while addressing design constraints.

**Maintaining Technological Systems:** Technical information comes in many forms and is used to test, evaluate, and problem-solve within systems.

- **Understanding Technical Information:** Technical information comes from a variety of sources and is used maintain systems and understand how they work.
- **Problem Solving and Maintaining Systems:** At times, systems will need to be adjusted or repaired, and tools and equipment must be used safely to maintain these systems.
- **System Testing and Evaluation:** Systems are designed with a specific purpose, and controls are placed within systems to address their performance.

**Technological System Interaction:** Technological systems are designed to meet a specific need and can address this need through a variety of functions, processes, and interactions with other systems.

- **System Functions, Processes and Development:** Processes within systems serve different functions and can cause problems with the performance of the system if there is a malfunction.
- **System Design and Development:** Knowledge from a variety of fields is used in the development of products and systems, and the completed system can be used in multiple applications.
- **System Malfunctions and Troubleshooting:** There is no such thing as a perfect design or system. Systems must be maintained over the course of their use to continue proper functioning. When a system malfunctions, proper troubleshooting is necessary to fix the issue.

**Technological Systems in the Designed World:** A variety of different technological tools, processes, and materials can be integrated to form systems.

- **Power and Energy Systems:** Energy is needed for humans, machines, systems, or other means to do work.
- **Communication Systems:** The process of communication can take place between humans, machines, and humans and machines.
- **Constructing Specialized Manufacturing Environments:** Production and manufacturing environments for biological and medical equipment and materials must align to standards that ensure the quality of the material produced.



**For More Information**

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