Auxiliary Concept: Communication Technology

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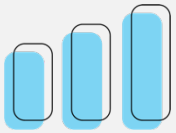
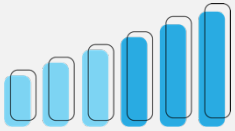
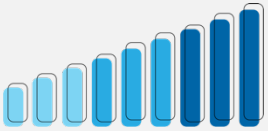
Engineering Literacy Dimension: Engineering Knowledge
Domain: Engineering Technical Applications
Overview: *Communication Technologies are* the systems and products that extend the ability to collect, analyze, store, manipulate, receive, and transmit information or data which can include anything from graphic media to computers, cellular devices, and fiber optics. *Communication Technologies* are important to Engineering Literacy as these systems have become intertwined with our daily lives and, in many ways, society has become increasingly dependent on them.

Performance Goal for High School Learners
I can, when appropriate, draw upon the knowledge of Communication Technologies content, such as (a) *digital communication*, (b) *telecommunication*, (c) *graphic communication*, (d) *photonics*, and (e) *network systems*, to visually represent, analyze, and propose the procedures and products necessary to effectively, efficiently, and appropriately communicate data and/or information.

	 Basic	 Proficient	 Advanced
DIGITAL COMMUNICATIONS	I can identify elements of a digital communication system (encoder, modulator, channel, demodulator, decoder, etc.).	I can explain and draw a block diagram illustrating the process in which the elements transmit data through the system. (eg. AC to DC conversion).	I can evaluate the performance of a given digital communication system, analyzing the parameters determining its performance.
TELECOMMUNICATIONS	I can describe the history of telecommunication technology from telegraph to wireless communications and its social, cultural, and economic impact.	I can explain what elements constitute a telecommunication system (e.g. transmitter, channel, receiver, modulation, etc.) and then draw a block diagram illustrate the process in which the elements transmit data through the system.	I can evaluate the performance of a given telecommunication system, analyzing the parameters determining its performance.
GRAPHIC COMMUNICATION	I can identify several graphic communication elements. These can include drawings, sketches, photographs, to engineering software applications (CAD) in 2D and 3D.	I can present and explain various 2D and 3D media and studious to communicate products and use to improve a design or creative process.	I can research, evaluate and synthesize conceptual design solutions using 2D and 3D communication applications.

Auxiliary Concept: Communication Technology Cont.

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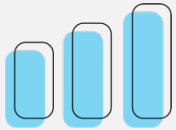
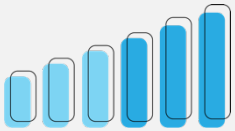
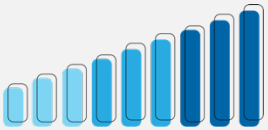
	 Basic	 Proficient	 Advanced
PHOTONICS	I can explain how signals are transmitted using a wired system.	I can explain how signals are transmitted using a wireless system and the advantages over a wired system.	I can understand how signals are transmitted using a fiber optics system and the advantages over a wireless system.
NETWORK SYSTEMS	I can describe the basic elements (nodes) and structures of networks.	I can explain how a given network is structured and works, drawing a diagram.	I can determine and justify which type of networks is most appropriate for my design.