

LINCOLN PUBLIC SCHOOLS
Technology/Engineering Learning Expectations: Grade 6

Strand:

Technology/
Engineering

**Mass Standard
TE 5.2**

Identify and describe three major types of bridges (e.g., arch, beam, and suspension) and their appropriate uses (e.g., site, span, resources and load).

See also: TE1.1, TE1.2, TE1.3, TE2.1, TE2.2, TE2.3, TE2.4, TE2.5, TE2.6, TE5.1, TE5.3 and TE5.4

Big Ideas

- ❑ Construction technology involves building structures in order to contain, shelter, manufacture, transport, communicate and provide recreation.

Key Outcomes

- ❑ Students will demonstrate an understanding that **structures can be designed to withstand forces** by planning and building bridges and towers capable of bearing up under varying amounts of compression, tension and torsion.

Essential Knowledge and Skills

Students will be able to:

- ❑ Describe scientific principles that are found within the system of a bridge (forces-compression, tension, equilibrium, deflection)
- ❑ Become aware of the support that certain shapes offer when managing a load.
- ❑ Identify basic shapes that form structures.

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**Mass Standard
TE 6.1**

Identify and compare examples of transportation systems and devices that operate on each of the following: land, air, water, and space.

See also: TE1.1, TE1.2, TE1.3, TE2.1, TE2.2, TE2.3, TE2.4, TE2.5, TE2.6, TE6.2, TE6.3 and TE6.4

Big Ideas

- ❑ Transportation vehicles have six major technical systems that allow them to operate efficiently in a given environment. The level of complexity of these technical systems is directly related to the challenge of the physical environment itself.

Key Outcomes

- ❑ Students will demonstrate an understanding that transportation vehicles have six major technical systems that allow them to operate efficiently in a given environment by using and following a structured process (the Engineering Design Process) to design and build transportation vehicle/systems.

Essential Knowledge and Skills

Students will be able to:

- ❑ There are five basic technical systems that are directly part of the transportation process: structure, propulsion, control, guidance, and suspension; the sixth basic technical system, support, is indirectly linked to the transportation process.
- ❑ List and describe the types of support systems needed to operate a transportation vehicle or system.
- ❑ List and explain the five elements associated with transportation operations.
- ❑ Identify in a given transportation system where and when the five transporting operations take place.

