

Digital Discoveries – Transportation Systems

Standards

NGSS

Students who demonstrate understanding can:

- 3-5-ETS1-1.** *Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.*
- 3-5-ETS1-2.** *Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.*
- 3-5-ETS1-3.** *Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.*

Indiana Academic Standards

Science 4.4.1 Investigate transportation systems and devices that operate on or in land, water, air and space and recognize the forces (lift, drag, friction, thrust and gravity) that affect their motion.

Science 4.4.4 Define a problem in the context of motion and transportation. Propose a solution to this problem by evaluating, reevaluating and testing the design. Gather evidence about how well the design meets the needs of the problem. Document the design so that it can be easily replicated.

Language Arts 4.SL.4.1: Using appropriate language, report on a topic or text or provide a narrative in an organized manner, with effective introductions and conclusions, using appropriate structure, appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly and concisely at an understandable pace.

Illinois Science and Engineering Learning Goals

- 13.B.2c Identify and explain ways that science and technology influence the lives and careers of people.*
- 11.B.2b Develop a plan, design and procedure to address the problem identifying constraints (e.g., time, materials, technology).*
- 11.B.2c Build a prototype of the design using available tools and materials.*
- 11.B.2d Test the prototype using suitable instruments, techniques and quantitative measurements to record data.*
- 11.B.2e Assess test results and the effectiveness of the design using given criteria and noting possible sources of error.*
- 11.B.2f Report test design, test process and test results.*