

Models & Designs Conceptual Story

FOSS - Grade 5

K-12 Unifying Concept: Our physical world is made of substances, materials, and objects that can be identified by their unique properties, and is organized into systems that are interconnected.

Fifth Grade Level Concept: Science is the exploration and investigation of the natural world. Technology applies scientific understanding to design solutions to human problems.

Sub-concept: The construction of physical and conceptual models allows us to explain how systems work and how they are constructed.

Lesson 1.1
Black Boxes
Students observe sealed black boxes and develop conceptual models to explain what is inside the boxes. They test and revise their explanations as new evidence arises.

Lesson 1.2
Black Boxes
Students construct physical models in order to revise their earlier conceptual models of what is inside the black boxes.

Lesson 1.3
Drought Stoppers
Students construct a conceptual model to explain how they think the drought stopper works.

Sub-concept: A system is made up of parts that work together and do things that could not be done by themselves.

Lesson 2.1
Hum Dingers
Students collaborate to create a physical model of a Hum Dinger, comparing the performance of the real device to their models.

Lesson 2.2
Hum Dingers
Students create a system in which all parts work together to satisfy an engineering challenge.

Sub-concept: Science and technology can be used to design solutions to human problems.

Lesson 3.1
Free-wheeling Go-carts
Students design and build a free-wheeling go-card that meets specific criteria.

Lesson 3.2
Self-propelled Go-carts
Students design and build self-propelled go-cards, relating structures to functions as they test and improve them.

Lesson 3.3
The 2-Meter Run
Students investigate variables that affect the distance their self-propelled go-carts travel.

Sub-concept: Technology is the application of science to the development of things that benefit society.

Lesson 4.1
Building a Standard Go-cart
Students collect and interpret data, comparing the distance their go-carts travels with different-sized wheels.

Lesson 4.2
The Run-around Cart
Students modify their self-propelled go-carts to perform various maneuvers, while investigating the relationship among go-cart variables.

Lesson 4.3
Advanced Tricks
Students evaluate their go-cart solutions to the advanced trick challenges in relation to specific criteria.