



NEW

FOSS Variables and Design Course, Grades 5–8 **With the right teaching,** **they can engineer change.**

Introducing the new FOSS® Variables and Design Course. The first middle school course that focuses on engineering and design the FOSS way: by inviting students to step into the roles of engineers and designers themselves. This four-week course lets students design solutions to engineering problems, choose a problem in their own local community they try to solve—then discover they have the power to make the world a better place.



FOSS Variables and Design Course: Testing variables, designing solutions, meeting challenges.

**Students choose their own
engineering adventure.**

The mission of an engineer is to identify problems and try to solve them. This mindset, not just rote memorization of facts, is the goal of the Framework and NGSS. And in the FOSS® Variables and Design Course, this way of thinking is exactly what students learn by doing.

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Testing Variables

Students learn how to design a controlled experiment. They study the phenomenon of a trolley in motion, and draw conclusions about relationships between variables.

Testing Designs

Students take on an engineering challenge. They design a trolley that must meet specific criteria and constraints, and learn the engineering design cycle.

Real-World Problems

Students use what they've learned by meeting a design challenge of their own choosing in their community, and they explore digital fabrication including 3D printing.

Four weeks. Countless uses.

The new FOSS® Variables and Design Course is a suggested four-week course designed for grades 5–8, typically used in grade 6 as the start of a middle school science curriculum. But it can be bought separately as a STEM elective, a complement to your other STEM courses, or as an afterschool or STEM club activity. It's also an ideal way for any school with a maker space or robotics kit to kick-start students' thinking about engineering before setting them free to build their designs.

FOSS® Middle School

Grade	Integrated Middle Grades					STEM
8	Heredity & Adaptation* ES,LS	Electromagnetic Force* PS, ES, E	Gravity & Kinetic Energy* PS, E	Waves* PS, E	Planetary Science PS, ES	Variables & Design† Grades 5-8
7	Chemical Interactions PS, ES, E		Earth History PS, ES, LS		Populations and Ecosystems ES, LS, E	
6	Weather and Water PS, ES, E		Diversity of Life LS		Human Systems Interactions LS	

PS: Physical Science content, ES: Earth Science content, LS: Life Science content, E: Engineering content *Half-length courses
 †STEM course can be purchased as a supplement to the FOSS curriculum or purchased separately for STEM electives or extracurricular activities.

FOSS® K–5

Grade	Physical Science	Earth Science	Life Science	STEM
5	Mixtures & Solutions	Earth & Sun	Living Systems	Sound Design**
4	Energy	Soils, Rocks & Landforms	Environments	
3	Motion & Matter	Water & Climate	Structures of Life	
2	Solids & Liquids	Pebbles, Sand & Silt	Insects & Plants	Forces in Action**†
1	Sound & Light	Air & Weather	Plants & Animals	
K	Materials & Motion	Trees & Weather	Animals Two by Two	

*Coming early 2020

†STEM modules can be purchased as a supplement to the FOSS curriculum or purchased separately for STEM electives or extracurricular activities.

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