

Engineering Opportunities in FOSS® Next Generation Middle School

** indicates the entire part is an engineering challenge/focus*

Grade 6

Course	Engineering Opportunity
Diversity of Life	<ul style="list-style-type: none"> • Inv. 2.1: Meet the Microscope • Inv. 2 Ext.: Make a Water-Drop Microscope • Inv. 8 Ext.: Research How Cockroaches are Connected to Robots
Human Systems Interactions	<ul style="list-style-type: none"> • Inv. 3 Ext.: Research Different Kinds of Hearing Aids
Weather and Water	<ul style="list-style-type: none"> • Inv. 2 Ext.: Build a Wind Sock • Inv. 5.1: Fluid Conduction • Inv. 5.2: Insulation * • Inv. 5.3: Home Design *

Grade 7

Course	Engineering Opportunity
Chemical Interactions	<ul style="list-style-type: none"> • Inv. 6.1: Insulation * • Inv. 6.2: Thermos Design * • Inv. 8.3: Freezing Water *
Earth History	<ul style="list-style-type: none"> • Inv. 6.1: Mapping Volcanoes and Earthquakes • Inv. 8.1: Introduction to the Project
Populations and Ecosystems	<ul style="list-style-type: none"> • Inv. 8 Ext.: Create a Wildlife Habitat at School • Inv. 9.1: Human Involvement • Inv. 9.2: Evaluating Solutions • Inv. 9.3: Presentations

Grade 8 on next page

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Grade 8

Course	Engineering Opportunity
Electromagnetic Force	<ul style="list-style-type: none"> • Inv. 3.2: Building an Electromagnet • Inv. 3.3: Improving the Design * • Inv. 3 Ext.: Make a Rheostat • Inv. 3 Ext.: Build the Ultimate Electromagnet • Inv. 4.1: Electric Motors • Inv. 4.2: Electric Generators
Gravity and Kinetic Energy	<ul style="list-style-type: none"> • Inv. 4.1: Helmet Design Challenge * • Inv. 4 Ext.: Test Water Balloons
Heredity and Adaptation	<ul style="list-style-type: none"> • Inv. 3.3: Genetic Technology • Inv. 3.Ext: Research Ethical Concerns • Inv. 3.Ext: Follow up on Genetic Technology • Inv. 3.Ext: Research CRISPR, a Gene-Editing Tool • Inv. 3.Ext: Research Gene Drives
Planetary Science	<ul style="list-style-type: none"> • Inv. 5.2: Target Earth • Inv. 5.ext: Learn More About NASA DART Mission • Inv. 7.1: Where are the Planets? • Inv. 8.2: Explorations of the Solar System
Waves	<ul style="list-style-type: none"> • Inv. 2.2: Bridge Collapse * • Inv. 2.3: Energy in Sound Waves * • Inv. 3.1: Mirrors • Inv. 4.1: Optical Fibers • Inv. 4.3: Sending Images