

Engineering Opportunities in FOSS® Next Generation K–5		
<i>Life Science</i>	<i>Earth Science</i>	<i>Physical Science</i>
Grade K		
Animals Two by Two	Trees and Weather	Materials and Motion
	Inv. 3.3: Wind Direction Inv. 3: Extension – Bring wind catchers from home Inv. 3: Extension – Make carp wind socks	Inv. 1.3: Testing a Raft Inv. 1.5: Sawdust and Shavings Inv. 1.6: Making Particleboard Inv. 1.7: Making Plywood Inv. 2.2: Using Paper Inv. 2.4: Paper Recycling Inv. 2.5: Papier-Mache Inv. 2: Extension – Take apart and reassemble paper boxes Inv. 2: Extension – Make a paper box or paper envelope Inv. 2: Extension – Weave a paper mat Inv. 2: Extension – Teach students simple origami Inv. 3.2: Taking Fabric Apart Inv. 3.4: Graphing Fabric Uses Inv. 3.6: Building Structures Inv. 3: Extension – Show how knit fabric is made Inv. 4 (all): Getting Things to Move
Grade 1		
Plants and Animals	Air and Weather	Sound and Light
Inv. 1: Extension – Grow Plants in the Dark Inv. 2: Extension – Make newspaper pots for seedlings Inv. 3.1: Setting Up a Terrarium Inv. 3.4: Squirrel Behavior Inv. 3: Extension – Set up an aquarium Inv. 3: Extension – Make a Pitfall Trap Inv. 3: Extension – Make a Worm Bin	Inv. 1.2: Parachutes Inv. 1.4: Air and Water Inv. 1.5: Balloon Rockets Inv. 1: Extension – Plan and conduct simple investigations Inv. 1: Extension – Construct an air cannon Inv. 3.3: Pinwheels Inv. 3.4: Wind Vanes Inv. 3.5: Kites Inv. 3: Extension – Try new kit designs and materials Inv. 3: Extension – Make wind chimes	Inv. 2.4: Sound Challenges Inv. 2: Extension – Make a garden-hose listening tube Inv. 2: Extension – Design a string-cup party line Inv. 3: Extension – Shadow puppets Inv. 4.4: Designing with Light Inv. 4: Extension – Look at multiple images Inv. 4: Extension – Construct a periscope
Grade 2		
Insects and Plants	Pebbles, Sand, and Silt	Solids and Liquids
Inv. 2.4: Planting Outdoors Inv. 2: Extension – Plan student projects Inv. 3.2: Habitats Inv. 3.4: Insect Search Inv. 4: Extension – Invent an insect Inv. 5.2: Chrysalises Inv. 5.3: Adult Butterflies Inv. 5.4: Flower Powder	Inv. 2: Extension – Set up a sand exploration center Inv. 3.1: Rocks in Use Inv. 3.3: Sand Sculptures Inv. 3.4: Clay Beads Inv. 3.5: Making Bricks Inv. 3: Extension – Look at construction materials Inv. 4.1: Homemade Soil Inv. 4.2: Local Soil Inv. 4: Extension – Make an earthworm terrarium	Inv. 1.4: Construct with Solids Inv. 1: Extension – Provide for ongoing construction Inv. 1: Extension – Build a paper bridge Inv. 3.2: Separating Soup Mix Inv. 3.4: Beads and Screens Inv. 3: Extension – Separate mixtures with magnets Inv. 3: Extension – Separate mixtures with sieves Inv. 4.3: Toothpaste Investigation Inv. 4.4: Changing Properties Inv. 4: Extension – Change states of matter

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Life Science	Earth Science	Physical Science
Grade 3		
Structures of Life	Water and Climate	Motion and Matter
Inv. 1.4: Seed Dispersal Inv. 3: Extension – Investigate crayfish territories Inv. 4.3: Joints and Muscles Inv. 4: Extension – Build a model thumb Inv. 4: Extension – Add extensor muscles to the models	Inv. 2.2: Build a Thermometer Inv. 2: Extension – Calibrate a thermometer Inv. 3.5: Condensation Inv 5 (all): Waterworks	Inv. 1: Extension – Make a compass Inv. 2.1: Wheel-and-Axle Systems Inv. 2.2: Predicting Motion of New Systems Inv. 2.3: Twirly Birds Inv. 2.4: Tops Inv. 2: Extension – Construct giant wheels Inv. 2: Extension – Construct big and little tops Inv 3 (all): Engineering Inv. 3: Extension – Design a mouse trap cart Inv. 4: Extension – Separate a mixture
Grade 4		
Environments	Soils, Rocks, and Landforms	Energy
Inv. 1.2: Designing an Isopod Environment Inv. 1: Extension – Make a terrarium of local organisms Inv. 1: Extension – Build a compost pile Inv. 2.1: Designing an Aquarium Inv. 2: Extension – Design and build another class aquarium Inv. 2: Extension – Investigate water holes to mini-ponds Inv. 4: Extension – Make terrariums from around the world	Inv. 2.2: Stream-Table Investigations Inv. 2: Extension – Plan a field trip Inv. 2: Extension – Find a local erosion-control expert Inv. 3.4: Rapid Changes (?) Inv. 4.2: Making Concrete Inv. 4.3: Earth Materials in Use	Inv. 1.1: Lighting a Bulb Inv. 1.2: Conductors and Circuits Inv. 1.3: Series and Parallel Circuits Inv. 1.4: Solving the String-of-Lights Problem Inv. 1: Extension – Make schematic drawings Inv. 1: Extension – Explore energy-use meters Inv. 1: Extension – Make a silent alarm Inv. 2.3: Magnetic Force Inv. 2: Conduct more force investigations Inv. 3.1: Building an Electromagnet Inv. 3.2: Changing the Strength Inv. 3.3: Reinventing the Telegraph Inv. 3: Extension – Make a rheostat Inv. 3: Extension – Make a model motor Inv. 4.2: Rolling Balls Down Slopes Inv. 4.3: Collisions Inv. 5.3: Engineering with Solar Cells Inv. 5: Extension – Construct a periscope
Grade 5		
Living Systems	Earth and Sun	Mixtures and Solutions
Inv. 3.2: Circulatory Systems Inv. 4: Extension – Investigate other stimuli	Inv. 1.1: Shadow Shifting (models) Inv. 1: Extension – Research sundials Inv. 3: Extension – Find out how digital weather stations work Inv. 3: Extension – Engineer a device to slow a falling object Inv. 4.4: Color and Energy Transfer Inv. 4: Extension – Design other solar water heaters Inv. 4: Extension – Solar-energy technology in your community Inv. 4: Extension – Investigate direct sunlight Inv. 5: Extension – Make a rain gauge	Inv. 1.3: Separating a Dry Mixture Inv. 1: Extension – Engineers without borders Inv. 2: Developing Models (all) Inv. 2: Extension – Draw blueprints Inv. 2: Extension – Develop a soft-drink dispensing machine model Inv. 4.3: The Saturation Puzzle Inv. 4.4: What's in Your Water? Inv. 4: Extension – Get involved with World Water Monitoring Day™ Inv. 5.3: Reaction in a Zip Bag Inv. 5: Extension – Apply the reaction