Completed Lesson Plans			
Grade Level	**Topic**	**Equipment / Kits**	**Standards**
K-2nd	Infrared Camera & Shade Structure Activity Guide	Infrared (thermal imaging) camera Kit with materials for engineering design activity	K-PS3-2, 1-PS4-3, 2-PS1-2, K-2-ETS1-1, K-2-ETS1-2, K-2-ETS1-3 (Also includes Math, ELA/Literacy standards)
3rd-5th	Engineering Design Process: Solutions for Space Travel	3-D Printer *used with Tinkercad (free software)	3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3 (Also includes Writing, Reading and ELA/Literacy standards)
4th	Solar Powered Fan & Light: Energy Conversion, Conservation of Energy, and Limits to Solar Energy	Solar Powered Fan & Light Kit *used along with FOSS kit	4-PS3-2, 4-PS3-4, 4-ESS3-1, 3-5-ETS1-2, 3-5-ETS1-3, SEP-6, SEP-8, CCC-2, CCC-5
5th	Gardening, Ecosystems, Land Surveying, and Engineering Design	Surveying Tools (tripod, theodolite, level, rod/staff, tribrach, measuring tape) 3-D Printer Carvey mini-milling machine	5-LS2-1, 5-PS3-1, 5-ESS1-2, 5-ESS2-1, 5-ESS3-1, 3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3 (Also includes Math, Writing, Reading and Speaking/Listening standards)
6th	Wind and Weather	Anemometer and table-top fan	MS-ESS2-5
7th	Earth Systems, Plate Tectonics, Convection, Climate, Human Activity, Natural Disasters, Technology, Engineering Design	Raspberry pi (micro-computer) and seismic sensors (geophone) Mini-Landslide Stream Table Slope Stability 3-D Printer	MS-ESS2-2, MS-ESS2-3, MS-ESS3-2, MS-ETS1-1, MS-ETS1-3, MS-ETS1-4
6-8th	Generating Off-Grid DC/AC Solar Power	Off-grid energy storage system (includes photovoltaic panel, microcontroller, battery, and cell phone charger)	*Activity guide is not referenced to NGSS*
6-8th	Water Cycle, Water Purification, Natural Resources	Water Treatment Kit (includes pump, PVC frame, six different water filtration media, tubing, water quality testing strips, and turbidity testing tube)	MS-ESS2-4, MS-ESS3-1, MS-ESS3-3, MS-ESS3-4, ESS3.A, ESS3.C, ESS3.D
8th	Racing Spoilers: NASCAR Engineers Use Newton's Laws of Motion	3-D Printer *used with Tinkercad (free software)	MS-PS2-1, MS-PS2-2, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4
10-12th (Geoscience)	Human Sustainability, Focus: Solar Energy	Solar Thermal Water Heater (includes thermal panel, photovoltaic panel, pump, temperature meter, and electrical circuit)	HS-ESS2-4, ESS2.D, HS-ESS3-4, ETS1.B, HS-ETS1-1, HS-ETS1-3

10-12th (Physics)	Conversion of waves (light, sound) from digital audio to light to sound	Solar Audio kits (assembled by students)	*Activity guide is not referenced to NGSS*
Future Lesson Plans			
Grade Level	**Topic**	**Equipment**	**Standards**
4th	Erosion and Flooding	Floodplain model with sensors *used along with FOSS kit	4-ESS2-1, 4-ESS2-2, 4-ESS1-1, 4-ESS3-1, 4-ESS3-2, 3-5-ETS1-1, 3-5-ETS1-2, 3-5ETS1-3, SEP-6, SEP-8, CCC-2
6th	Weathering, Flooding and Climate	Floodplain model with sensors	MS-ESS2-5, MS-ESS3-2
11-12th (AP Environmental Science)	Natural Resources, Ecological and Economic Impacts of Mining, Waste Remediation	UV-Visible spectrophotometer	College Board: EIN-2.K, EIN-2.L