

1	8/31	Scientific method. Variables.	Popcorn experiment. Samples of popcorn (super dried, soaked in water and control) will pop differently.	MS-ETS1 Engineering Design
LP1	2	9/7	Separations based on density. Can you walk on eggs?	
	3	9/14	TBA (usually liquid nitrogen and dry ice demo, we will see...)	6-PS3-3 6-PS3-4
	4	9/21	Test materials with different conductivity. Thermometers. Gas thermal expansion experiment	6-PS3-5 MS Energy
LP2	5	9/28	Candle in a jar experiment. Boiling water in the paper cup. Colorful flames.	
	6	10/5	How to use a stove, ferro rod and a fire extinguisher. Flammable materials, matches.	
	7	10/12	Oil spill project. Use variety of purification methods to clean the oil spill in a container filled with water.	MS-ESS3-3 MS Human Impacts
	8	10/19	Experiments to demonstrate convection and Eddy currents.	
LP3	9	10/26	Earth density model/column. Olivine. Earth's mantle – Pollack-style painting on canvas. Pizza model of Earth.	MS-ESS2 Earth's Systems MS-ETS1 Engineering Design
	10	11/2	Model of the seafloor spreading. Continental drift puzzle. Oreo cookie demo. Ring of fire song. Hot cocoa on the pan – tectonics demo.	
	11	11/9	Interactive computer maps. Multiple plate movement demo.	
	12	11/16	Create a pendulum, measure oscillation, plot it on the graph. Use rope and rice to demonstrate wave movement.	
LP4	13	11/30	Flashlight, laser, and lens experiments. Test materials and figure out which one can block radio waves. Find out what happens with cellphone if you wrap it in foil.	MS-ESS1 Earth's Place in the Universe  MS-ESS1 Earth's Place in the Universe
	14	12/7	Experiments with lasers, infrared light, UV (black light). Observe different types of luminescence.	
LP5	15	12/14	Waves demo. Making seismograph and	MS-ESS2 Earth's

Moment magnitude earthquake scales.

earthquake alarm with pendulum. Seismogram analysis (identifying epicenter simulation). Pasta demo. Making an Isoseismal map.

Systems

#### SPRING SEMESTER

16 EQ 1/4

Test on waves. Elastic-rebound theory of earthquakes. Elasticity. Different types of stress.

Comparing elasticity of different materials. 3 types of stress demo.

MS-ESS2 Earth's  
Systems

MS-ETS1 Engineering  
Design

MS-ESS2 Earth's  
Systems

LP5	17	EQ 1/11	Soil effects on Earthquake. Liquefaction. Engineering solutions.	Detect seismic wave traveling through the different grounds. Sinking house model.
	18	EQ 1/25	Earthquake hazards. Land slides	Three friends in a valley simulation.
LP6	19	EQ 2/1	Earthquake hazards. Tsunamis	Tsunami generator experiment. Working with sources: survivors' interview and video footage.
	20	EQ 2/8	Earthquakes. Structural hazards. Engineering solutions. Idea of resonance.	Shake table. Engineer a safe building – "wall" model. Simplified BOSS model.
	21	EQ 2/22	Test on Earthquakes.	Identified hazards in the room. Learn how to turn off electricity, gas, and water.
	22	3/1	Earthquakes forecasting. Preparedness. Volcanos. Class 1	Hot spot demo. Volcano models: elephant toothpaste, chocolate explosion and eruption with ash. Analyse 2 types of real ash. Preserving a balloon in the volcanic ash
LP7	23	3/8	Volcanos. Class 2 hazards: lahars and landslide. Mt St Helens. Volcanic gases. Acid rains. Carbon cycle.	Working with rock collection: sulfur containing rocks. Gas to acid reaction, detection with indicator.
	24	3/15	Volcanos. Class 3 Classification. Caldera. Underwater volcanos. Igneous rocks.	Underwater volcano model. Caldera model. Working with rock collection: igneous rocks. Compare properties of pumice and scoria. Making bracelet from vesicular basalt.
	25	3/22	Test on Volcanos. Weathering. Erosion and Deposition. Class 1 Water and Temperature.	Frozen egg. Hatch and grow "erosion". Acid test. Exfoliation of rock and glass. Working with rock collection: limestones.
LP8	26	4/5	Weathering. Erosion and Deposition. Class 2 Wind and waves. Sedimentary rocks.	Weathering sugar cube. Working with rock collection: chert, conglomerate. Tumbled rocks. Creating sedimentary rock with plaster.
	27	4/12	Paleontology. Fossil types. Relative dating.	Crack rocks with hammer to find carbonized fossil. Working with rock collection: fossilized rocks. Make a carbonized fossil model. Make a fossil magnet. Polish amber. Sort fossils.
LP9	28	4/19	Metamorphic rocks. Rock cycle.	Play dough model. Working with rock collection: metamorphic rocks and minerals Marble/quartzite test. Soapstone carving project. Lapis lazuli painting.
	29	4/26	Learn how sand forms. Different sand types and their forming minerals.	Analise Purple sand sample under the microscope. Looks at the different sand samples (green, white, black).
LP9	30	5/3	Minerals – building blocks of rocks. Identification technics.	Working with rock collection: minerals. Identify a mineral using acid, streak, fracture and cleavage, and fluorescence tests.
	31	5/10	Soil. Seeds and germination.	Compare different types of soil, change soil pH. Looking at the seeds and seedlings germinating at different conditions
	32	5/17	Mt Diablo Foothill field trip (Borges ranch-Sulfur Springs- Castle Rock)	Signs of landslides erosion, sedimentary rocks, sulfur springs, Mt Diablo habitats

LP10 33 5/29 (Sat) Ocean trip (ecology, geology, Earth's interaction with celestial objects). Pescadero, day trip. Low tide (very rare) -1'8" at 7.45  
Comparing 2 types of intertidal zones (sandy and rocky), reviewing rock types. Algae and animals in the Universe of the intertidal zone.

EQ – adopted from ParsQuake program (affiliated with Teachers without Borders). ParsQuake provides earthquake education in the Central Asia zones with high geohazards (seismic, volcanos, landslides, tsunamis etc.). This program connects science with real life situations helping students to make decisions in critical situations which may save their life.