**8TH GRADE SCOPE AND SEQUENCE: SCIENCE/FOSTER**

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| Unit | Length | Unifying Themes | Topics | Activities | Standards |
| Nature of Science | 3-4 Blocks | Evolution  Scale | What is Science?  Observations and Inferences  Inquiry Methods | Zoom  Hide the Cookie  The Earth is Flat  Balloon Rocket  Science Surprises |  |
| Measurement | 4-5 Blocks | Scale  Matter and Energy | The Metric System  Length, Width, Area  Volume (Regular/Irregular)  Density  Temperature | Mass, Weight, Density, Volume Measurement Labs  Temperature Conversions  Build a Thermometer  Silo Lab w/Cereal |  |
| Properties of Matter |  | Scale  Matter and Energy  Interactions | Physical vs Chemical Properties  Mass  Weight  Volume  Density  Conductivity  Malleability | Mystery Bags  Gummy Worm Lab/Twizzler Lab (culminating project)  Conduction/Insulation (Phet Lab) |  |
| States of Matter |  | Scale  Matter and Energy  Interactions | Particle Theory of Matter  Matter in Motion  Phase Changes  Heat/Energy  Graphing Phase Changes | Newspaper/Ruler (Demo)  Gas Displacement: Does Air Have Volume Lab?  Modeling/Diagramming States of Matter  PhET States of Matter (online)  Surface Tension (penny) and Viscosity Lab  Viscosity Races  Temperature- Viscosity  Boiling Point of Water Lab  Gas Laws (online Phet simulation)  Speed Inflation  Empty the bottle racing  Solar Bag  3 Hole Bottle (inquiry lab)  Dry Ice/Sublimation (outside) |  |
| Elements, Compounds, Mixtures |  | Scale  Matter and Energy  Form and Function | Elements  Compounds  Mixtures | M&M Graphing  Separating Mixtures  Filtration  Distillation of Cherry Coke  Solution Races  Flame Test Labs |  |
| Atomic Theory |  | Evolution  Scale  Matter and Energy  Form and Function  Models | History of Atomic Theory  Structure of the Atom  Periodic Table  Periodic Trends | Atomic Theory Timeline  Atomic Modeling  PhET Build an Atom  Periodicity Simulation |  |
| Chemical Reactions | 12-13 Blocks | Matter and Energy  Interactions  Models | Chemical Bonding  Formulas and Equations  Conservation of Mass  Chemical Reactions  Stoichiometry | Drawing Bohr and Lewis Models  Elephant Toothpaste Lab  Chemical Reaction in a Bag  Dehydration of Sugar  Penny Displacement  Balancing Simple Equations  Controlling amount of Products  Catalyst/Enzyme Lab |  |
| Kinematics | 10-11 Blocks | Matter and Energy  Interactions | Distance/Displacement  Speed/Velocity  Acceleration  Graphing Motion | Smoots  Mapping/Graphing Distance and Displacement  Who's the Fastest? Lab  PhET Maze Game |  |
| Forces |  | Matter and Energy  Interactions | Gravity  Friction  Newton's Laws  Kinetic and Potential Energy | CD Hovercraft  Friction Lab  Drop Lab  Phet Roller Coaster  Pendulum Lab  PhET moving man  PhET The Ramp  PhET Energy Skate Park |  |
| Electricity | 9-10 Blocks | Evolution  Scale  Matter and Energy  Models | Electrostatics  Current and Voltage  Ohm's Law  Circuits  Electromagnetism | Squishy Circuits  Make a battery  Van der Graaf Generator  PhET Balloons and Static Electricity  PhET John Travoltage  PhET Ohm's Law  Parallel and Series Circuits  PhET Circuit Construction Kit  Making a Speaker  Making an Electromagnet |  |
| Sound and Light | 9-10 Blocks | Evolution  Matter and Energy  Models | Electromagnetic Spectrum  Electromagnetic Waves  Reflection  Refraction  Mechanical Waves  Color Spectrum | Mirror, Mirror, on the Wall  Spectroscopy  UV/IR Prism Lab  PhET Color Vision  Disappearing glass rod refraction  Water Magnifier  Wave Tank  Chromatography  What's in a Black Line? |  |