Biology:

* [Strawberry DNA Extraction](https://www.scientificamerican.com/article/squishy-science-extract-dna-from-smashed-strawberries/) (Scaffolded for Grades 3-12)
	+ Students will learn about DNA by extracting it from strawberries. This lesson focuses on DNA and the importance of what scientists do with extracted DNA.
* Behavior of Termites (Scaffolded for Grades 6-12)
	+ Students will observe the behavior patterns of termites, and how we can change their behavior with just a pen. This lesson can be modified to emphasize animal adaptations and chemical composition of pen ink.
* Fingerprint Analysis (Scaffolded for Grades K-3)
	+ Students will learn that their fingerprints are unique to only themselves, and how detectives can use them to solve crimes. Students will also categorize their fingerprint shape and compare them with their peers.

Chemistry:

* pH of Food (Scaffolded for Grades 3-12)
	+ Students will learn about the concept of pH, and how it relates to foods. Students will investigate the pH for a variety of foods and investigate what happens when substances of difference pH’s are mixed.
* [Density Challenge](https://www.flinnsci.com/api/library/Download/012482699e924291a428cccdaaad87e4) (Scaffolded for Grades 5-12)
	+ Students will engage in a challenge by using their knowledge of density to make an object float at a specific level in water. This lesson can be modified to emphasize volume, mass, and specific gravity.
* Science of Bubbles (Scaffolded for Grades K-3)
	+ Students will combine ingredients to create the perfect bubble mixture and learn about the science of how bubbles are formed.

Physics & Engineering:

* History and Engineering of Catapults (Scaffolded for Grades K-12)
	+ Students will apply concepts of physics and engineering to create a catapult that can transport objects through the air. Students will also learn about the history of this tool, and the use of it within science. This lesson can be modified to emphasis projectile motion.
* [Engineering a Boat](https://pbskids.org/designsquad/pdf/parentseducators/DS_Act_Guide_complete.pdf) (Scaffolded for Grades 3-12)
	+ Students will be challenged with the task to create a boat that can successfully float with limited materials. This lesson can be modified to emphasize buoyancy and wind energy with sails.
* Engineering a Roller Coaster (Scaffolded for Grades 1-12)
	+ Students will build rollercoasters while learning about the forces and energy involved. This lesson can be modified to emphasize potential and kinetic energy, physics calculations, and friction.
* Shark Tank: A Lesson on Product Design (Scaffolded for Grades 3-12)
	+ Students will think innovatively by identifying a problem and then designing a product as a solution. They will then work in groups to develop a pitch to market the product to investors.

Earth & Space Science:

* Fossil Investigation (Scaffolded for Grades K-12)
	+ Students will observe different types of fossils and try to predict the types of environments they lived based on observational evidence. Students will then learn about the process of fossil formation. This lesson can be modified to emphasize mass extinction, geologic dating, evolution, or physical adaptations.
* Creating Topographic Maps from 3D Models (Scaffolded for Grades 8-12)
	+ Students will create 3D landscapes and then collect data to make a topographic map of their model.
* Science of Magma (Scaffolded for Grades K-12)
	+ Students will learn about the different types of volcanoes, while investigating the properties of magma. This lesson can be modified to emphasize viscosity and natural disasters.
* Hydrology (Scaffolded for Grades 3-12)
	+ Students will learn about the water systems of the Grand Valley, and investigate how water flow rates change based on damming methods through the museum’s new water exhibit.

Pre-K:

* Viscosity Races
	+ Students will investigate how different liquids flow at different speeds based on the type of liquid. Students will then explore different stations, where they will build their scientific skill sets by learning about foundational concepts through hands on activities.
* M&M Rainbow Science
	+ Students will investigate how M&M’s interact with water. Students will then explore different stations, where they will build their scientific skill sets by learning about foundational concepts through hands on activities.

**Self-guided exhibit hall worksheets** are also available for Grade K-12 for the following topics: Biology, Earth Science, and Force and Motions