

	Lesson	Objective	Indiana Standards Covered	Time Required
Using Recyclables	Brown Bag Marble Run	Build a 3D, free standing marble run using only the materials inside the bag that will roll a marble the furthest distance possible.	<i>Science:</i> 7.PS.4, 7.PS.5, 7.PS.7, 6-8.E.1, 6-8.E.2, 6-8.E.2, 6-8.E.3, 6-8.E.4 <i>Math:</i> PS.5	1 Hour
	Catapult Challenge	Students will use the engineering design process to design and build accurate and precise catapults using common materials.	<i>Science:</i> 6.PS.1, 6.PS.3, 6-8.E.1, 6-8.E.2, 6-8.E.2, 6-8.E.3, 6-8.E.4 <i>Math:</i> PS.5 <i>Social Studies:</i> 6.1.3 <i>Engineering and Technology – Middle School:</i> ETE – 1.4, 2.1, 2.2, 3.1, 4.1, 4.2, 4.3, 4.4	3 days x 55 minutes
	Cool Puppy Maker Challenge	Students will design and build a doghouse that shelters a fictional (stuffed) puppy from the heat. Students are required to create their doghouses in groups and adhere to a variety of constrains.	<i>Science:</i> 6.LS.1, 7.PS.9, 6-8.E.1, 6-8.E.2, 6-8.E.2, 6-8.E.3, 6-8.E.4	3 days x 55 minutes
	NIY Newton’s Cradle	Students will construct a model that demonstrates Newton’s Third Law of Motion.	<i>Science:</i> 6.PS.1, 6.PS.3	3 days x 55 minutes
	Earthquake Towers	Students will explore how the design and structure of a building impact its durability during an earthquake by building a tower and testing it on an earthquake table.	<i>Science:</i> 7.PS.7, 6-8.E.1, 6-8.E.2, 6-8.E.2, 6-8.E.3, 6-8.E.4 <i>Engineering and Technology – Middle School:</i> ETE-4.2, 1.4, 1.2 <i>Earth Space Science:</i> 6.7	3 days x 55 minutes
3D Printing	3D Printing Europe	Students will 3D print a map of the European continent as a class and create displays of each European country to gain a better understanding of the countries that compose Europe.	<i>Social Studies:</i> 6.3.1, 6.3.2, 6.3.3, 6.3.4	5 days x 55 minutes
	3D Printing the Layers of the Earth	Convey the scale of the various layers of the earth with a physical, 3D printed model.	<i>Science:</i> 7.ESS.5, 6-8.E.1, 6-8.E.2	2 days x 55 minutes

	3D Rocketry	Students will use the Engineering Design process to design, 3D print, and test a rocket.	<i>Science:</i> 6.PS.1, 6.PS.2, 6.PS.3, 6-8.E.1 <i>Mathematics:</i> 6.GM.4, 7.GM.6	5 days x 55 minutes
	Discovering DNA	Students will explore DNA by pairing 3D printed pieces together to assemble a DNA model and creating 3D posters to share information about DNA with others.	<i>Science:</i> 8.LS.6	1 day x 55 minutes
	Investigating Elements	Students will investigate the properties of elements and their connection to atoms, molecules, and compounds by writing a children's story book about an element.	<i>Science:</i> 7.PS.1, 8.PS.1, 8.PS.2, 8.PS.3 <i>ELA:</i> 7.W.3.3, 7.W.4	5 days x 55 minutes
	Volume of a Cone	In this lesson, students will create three-dimensional cones in Tinkercad, 3D print their designs, and calculate the volume of each cone.	<i>Mathematics:</i> 8.GM.1, 8.GM.2	2 days x 55 minutes
STEM Kits	Solar Cockroach	Students will create a solar cockroach.	<i>Science:</i> 4.ESS.2, 4.PS.4	1 day x 55 minutes
	Crazy Contraptions	Students will work in groups to create a unique crazy contraption, which is a machine that performs a simple task in an overly complex way.	<i>Science:</i> 6.PS.1, 6.PS.3, 7.PS.4, 7.PS.5, 7.PS.6, 7.PS.7, 6-8.E.1, 6-8.E.2, 6-8.E.2, 6-8.E.3, 6-8.E.4 <i>Engineering and Technology – Middle School:</i> ETE – 1.4, 4.1, 4.4, 5.1, 10, 10.1, 10.2 <i>Physics:</i> PI.4.1, PI.4.2, PI.4.3	6 days x 55 minutes
	Light Up Pencil Pouch	Students will create a light up pencil pouch using Lectrify Light it pieces and conductive thread.	<i>Science:</i> 6.PS.4 <i>Family and Consumer Sciences – Middle School:</i> FCS-MS 5.4	2 days x 55 minutes
	Squishy Circuits	Students will create a circuit using the Crazy Circuits Touch Board and Squishy Circuits conductive dough that makes sound when the dough is touched.	<i>Science:</i> 6.PS.4 <i>Computer Science 6-8:</i> 6-8.DI.1, 6-8.DI.4, 6-8.DI.5, 6-8.PA.2 <i>Introduction to Computer Science:</i> ICS-2.1, 2.2, 2.5, 2.6	2 days x 55 minutes