

# Birthday Activities

## Recommended Ages 4-7



**Jr Aerospace Engineering - Stomp Rockets** - There's plenty of engineering that goes into designing rockets that can successfully launch beyond our atmosphere. In this lesson, students create their own stomp rockets, and students even have the opportunity to create their own stomp rocket launcher in the lesson extension.

**Jr Aerospace Engineering - Whirling Wonders** - Students will construct model helicopters. They will explore how forces such as thrust and lift help helicopters maneuver. In the lesson extension, students apply concepts of gliders and thrust to create straw loop planes.

**Jr Chemical Engineering – Secret Inkers** - Chemical reactions are cool, but when you have certain chemical reactions you can create some really mysterious designs. In this class students explore how acids and bases react and use what they've learned to write their own secret messages

**Jr Chemical Engineering - Presto-Chango Dough** – Students will have the opportunity to make their own play dough using simple household materials. Students will learn how different materials react chemically and how they can change the physical properties of their delightfully-scented Presto-Chango Dough!

**Jr Civil Engineering – I'll Huff and I'll Puff** - Students will design, build and test structures to create a model of a house that will be able to withstand the huffing and puffing of The Big, Bad Wolf!

**Jr Mechanical Engineering – Boomerang Cans** - Students will learn about the basics of kinetic and potential energy by constructing a magical Boomerang Can. This toy uses stored energy to return to the students after being rolled away on a flat, smooth surface

**Jr Mechanical Engineering – Rolling Ramblers** - During the Rolling Rambler activity, students will construct a model of a car using a toilet paper tube and other household items. They will learn about the car's wheel and axle system. And they will explore the principles of speed and acceleration as they test-drive their Rolling Rambler on different inclined surfaces.

**Jr Mechanical Engineering Toys - Spinner** – Students will explore the properties of spinning objects. They will build spinners with a variety of household objects. By the end, they will understand certain properties that help a spinner to gain enough momentum to rotate for the longest amount of time.

**Robotics Engineering** - Students will be introduced to the concept of robotics and will be given a chance to build and program their first robot.