



### STREAMING Goal Rockets Lesson Plan

**Lesson Title:** Goal Rockets

**Grade Level:** 6 - 8

**Objective/Expected Outcomes:** Goal Setting, Engineering Design Process, Team work

**Description:** Students will self-reflect and identify their personal goals for the year, their support system and their personal qualities that will help them achieve their goals. Students will then build their own rockets which will include all personal information about themselves. They will also design their own launch pad, from a variety of methods. Students will then work in groups to make one design “come to life” and work together to launch.

**Materials Needed:** Goal Template handout (see below), construction paper, tape, any materials found at home to repurpose for launch pads, graph paper, pencils.

**Technology Resources:**

[http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Advanced\\_High\\_Power\\_Paper\\_Rockets.html](http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Advanced_High_Power_Paper_Rockets.html)

Aerial Freestyle Skier Olympian Emily Cook’s youtube video on making a Goal Setting Pyramid

<http://www.youtube.com/watch?v=EOTI-jR4a2E>

**Assessment:** Students will complete Goal template, Present rockets to their class, produce a sound launch pad idea with detailed explanations, and will finally build and launch their rockets.

**How will this lesson incorporate STEM/STREAM?**

**Science:** Student will research and discuss the different methods to launch a homemade rocket from air or simple substance combinations (ie. Air Compression, Water/alka-setzer, soda/mentos) and will explain the scientific process that takes place to make this “explosion.”

**Technology:** Students will research examples of the rocket launches. They will use online resources for brainstorming and watching videos of homemade launchers. Graphing calculators will also be used to calculate the height of a rocket over time given quadratic formula for height.

**Religion:** Students will self-reflect on their personal strengths and weaknesses to set academic or personal goals for themselves. They will also discuss how their faith comes into play in goal setting.

**Engineering:** Students will design a rocket from paper or other materials. They will design and build launch pads based on these schematics.

**Arts:** Students will decorate their rockets to make them unique to their own personalities.

**Math:** Students will use the quadratic formula for height to discuss the relationship between velocity, time and height. They will also time their rockets launch and use that time to estimate ratio of feet per second of their rocket launches.

### **LESSON REFLECTIONS:**

**Student Observations:** Students were at times frustrated when their rocket plans were not working, however I found that many students were willing to help each other and offer solutions. I also found that the less I provided them with ideas, the more creative they became.

**What would you keep, change or add to this lesson?** I would add a parent component to the project. I would also like to invite a scientist who works with rockets to assess their designs and talk about the process of designing, engineering rockets and other objects in flight work. I would also have someone dedicated to recording the launches on a computer so students could watch, pause and calculate times in a more efficient manner.

**How will this lesson help students be better citizens in our community and, if applicable, ready for today's work force?**

Students needed to work in groups, which is common practice in the workforce.

Many students also needed to design, redesign and tweak their launch pads, which is also common when working on projects in the real world.

Students also needed to be able express their ideas clearly and effectively to the rest of the class, practicing effective communication skills.

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_



BLESSED SACRAMENT SCHOOL

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MY GOAL(S):

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MY STRENGTHS THAT WILL HELP ME REACH MY GOAL(S):

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THE PEOPLE THAT WILL HELP ME REACH MY GOAL(S):

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