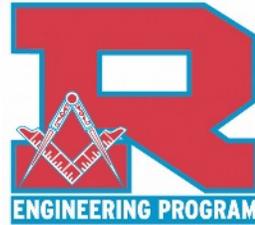


# BUILD

*A newsletter highlighting projects by students in Archbishop Rummel High School's Engineering Program*



Volume 1.2  October, 2016



*Outstanding commitment to continuous improvement in obstacle course design from Engineering III: Nathan Heath, Taylor Stradley, Jason Manning, and Michael Monistere.*

## ENGINEERING FOR SUCCESS

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## Overcoming Obstacles:

### How to build a successful course to meet the standards

Students in Engineering II and III completed their first **extended** (long-term) **design challenge** of the year: to design, prototype, and test an obstacle course using the six simple machines. Each team developed a different way to successfully sequence the simple machines — level, wheel and axle, screw, wedge, inclined plane, and pulley — for a small toy car to traverse the course. ►►



# BUILD

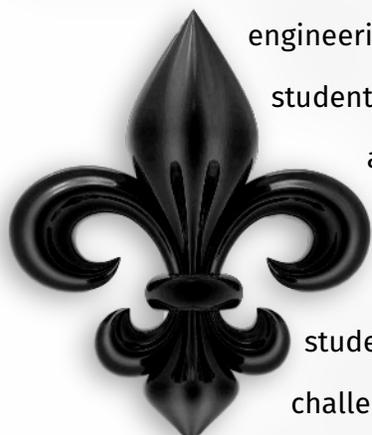
## Building the Community:

How to partner alumni, colleges, and Rummel students to take on the challenges of now and the future

*Rummel alumnus Joseph Roy, now a junior in UNO's School of Naval Architecture and Marine Engineering, works with Engineering III students to hone their skills*

Speaking to the Engineering III class, **Joseph Roy '14** highlighted some of the major projects on which he has worked at UNO. As a college student, Joseph has already interned with two major enterprises, helping to design marine vessels. He co-designed plans for the U.S. Navy, who were so impressed that they wanted to purchase the design to place into fleet service. While visiting Rummel, Joseph

showed the students several designs he developed for various engineering courses. He encouraged the students to find their passion in engineering and stick to it, despite the inevitable hard work. During his visit, Joseph took the opportunity to review the students' designs for the obstacle course challenge. He was impressed with the level



of their work, saying, "You're doing exactly what I do in college. You're building and testing, and

then retesting – just like I do." Acting as visiting professor, Joseph also

offered some helpful ideas so the students could continue to improve their project testing. By partnering with colleges and community professionals, Rummel students in Engineering experience unique opportunities to understand and participate in the bigger challenges

that face our community. See how *Robert Hudgins* continues at LSU.



*Although Engineering is difficult and challenging, the opportunities are endless. There will be many challenging times throughout college, but a willingness to work is what will separate the boys from the men.*  
— **Joseph Roy '14**

## Going the Distance:

### How to leverage Rummel's Engineering classes for college success

**Robert Hudgins '16** is now a freshman in the Chemical Engineering program at Louisiana State University. During a recent visit back to his



alma mater, Robert spoke about his current studies. "Engineering [level I at Rummel] last year was perfect. It taught me exactly what I needed to understand what engineering is all about."

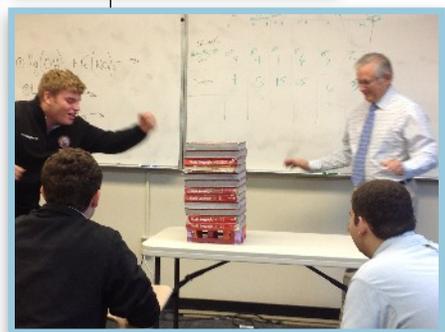
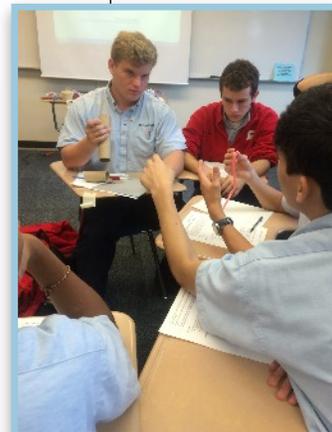
*[Rummel's] Engineering last year was perfect. It taught me exactly what I needed to understand what engineering is all about.*

— **Robert Hudgins '16**

Robert, here's to continuing success in your

new endeavors! We are **Raider-Proud** to be a part of your story. Below:

*A sampling of the various engineering design projects that Robert worked on last year in his Rummel pre-professional engineering course.*





## Creating the Design:

### How to build a dispenser ... and successful teamwork

Students in Engineering I have begun their first extended challenge: to design, prototype, and test a candy dispenser with a traditional Halloween theme, aimed for children ages 5-12.

Project constraints include a limited set of materials such as cardboard and cardstock sheets, pipe cleaners, wooden sticks, and tape. The dispenser must hold 1 lb. of individually wrapped Halloween “fun size” candies, while allowing no more than three candies at a time out a front opening.

Students have worked to brainstorm design ideas, sketch their final design to scale, estimate and order materials, and assemble and test the prototype.

The technical design skills, the engineering design process, and teamwork are all essential skills for engineers. **ABET** (the national board that accredits college engineering programs) requires training that targets particular skills. Among the engineering skills required are the ability to **►►**

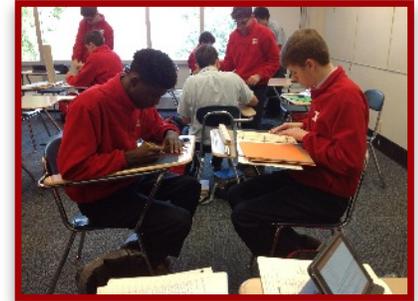


*Students worked in teams to develop a Halloween candy dispenser suitable for children ages 5-12 and able to dispense up to three individually wrapped candy packets at a time*

## ◀ Creating the Design (Continued)

identify and solve engineering problems, to design a product that meets desired needs within realistic constraints, and to work effectively as part of a team. Rummel’s engineering courses are designed to develop precisely those ABET-required skills. “What I have learned in Engineering this [first] year is how to work as a team to complete different projects,” affirmed **Joshua Roth ’17**. “It’s so much easier [to achieve effective results] when you use the engineering design process,” added first-year student **Jonah Ware ’18**.

Look for the finished candy dispensers in the Engineering room at this year’s **Open House** on Thursday, November 3 (6:00 - 9:00 p.m.). See the [web site](#) for a complete list of Spend-A-Day and Open House events this year.



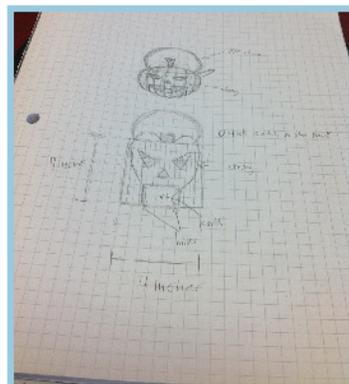
*What I have learned in Engineering this year is how to work as a team to complete different projects.*  
— **Joshua Roth ’17**



*It’s so much easier when you use the engineering design process.*  
— **Jonah Ware ’18**



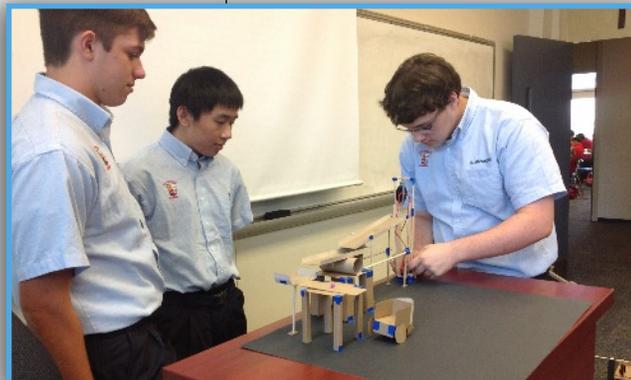
Austin Cannon and Joshua Roth work to assemble their Halloween candy dispenser





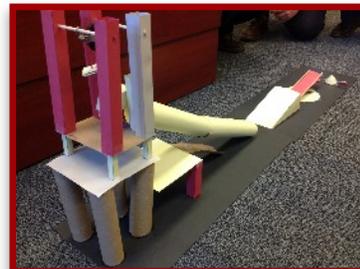
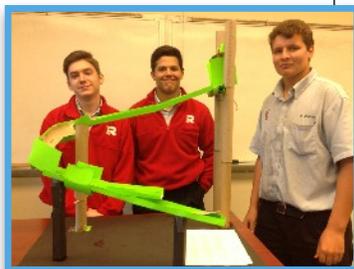
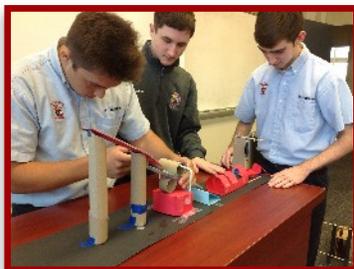
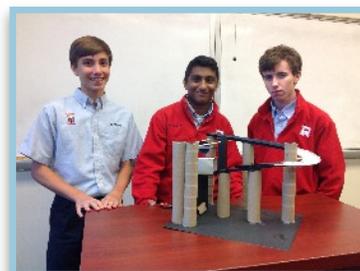
## ◀ Overcoming Obstacles (continued)

Every engineering design team in both levels of the course was able to meet the project specifications. Several teams demonstrated outstanding performance on the project. The design team of **Nathan Heath '18, Taylor Stradley '18, Jason Manning '18, and Michael Monistere '18** showed outstanding commitment to continuous improvement in their obstacle course design, testing different solutions to select the best outcome. The duo of juniors **Andreas Denapolis and Frank Impastato** also demonstrated impressive commitment to creating a quality design and persevering to make it work. Achieving outstanding design in mechanical precision, consistency of details, and aesthetics were the team of **Kyle Albaral '18, Wen Wu '17, and Kirk Maronge II '17**.

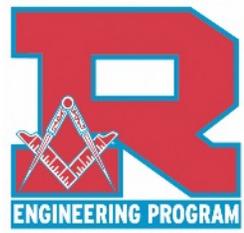


*Outstanding obstacle course design team from Engineering III: Mechanical precision, consistency, and aesthetics, first place: Kyle Albaral, Wen Wu, and Kirk Maronge II.*

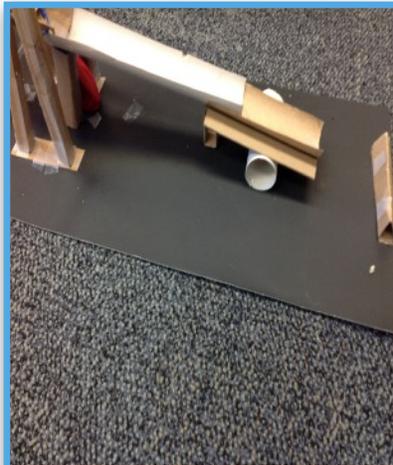
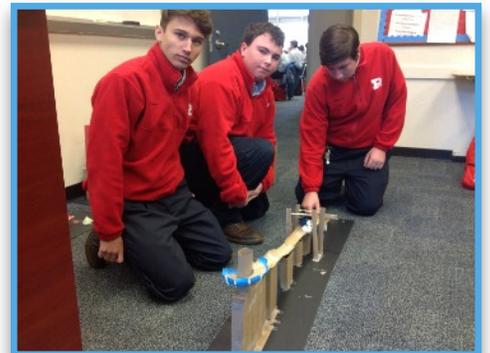
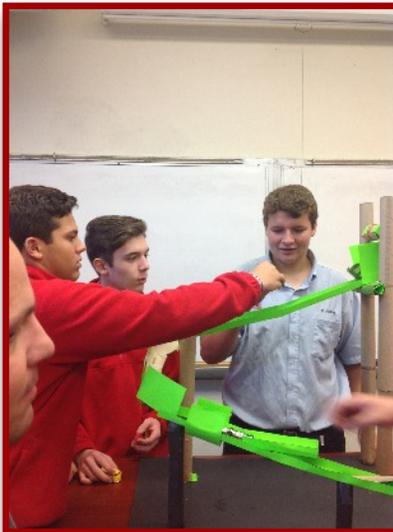
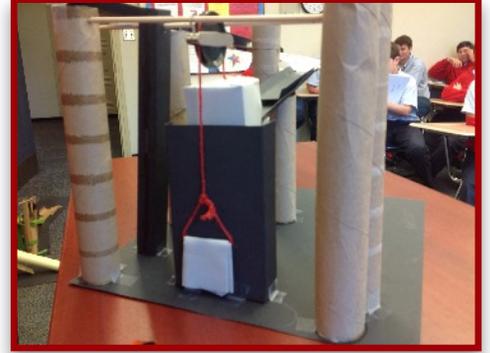
Students are now developing a multi-machine mechanism to lift a weight a specific distance and height, using a constrained set of materials and equipment.



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## Developing the Next Generation:

### How to connect with Raiders-to-Be

In recent days, Engineering students have hosted several groups of grammar-school students at Rummel's **Spend-A-Day** program.

The young visitors have worked in teams, mentored and assisted by the Rummel engineering students to complete an instant challenge similar to the first challenge of the year: to design and build a cable car that will travel as far as possible.

The challenge itself is exciting, and the results have been clear: The young students learn first-hand

what brotherhood means at Archbishop Rummel High School, while also experiencing a fun preview of Rummel's Engineering program.





## Building for Success:

How to partner students with professionals to take on a real-world challenge

**Brian Moldaner '06** recently met with the Engineering III students to investigate Rummel's junior high campus. The project goal was to develop a feasibility study on getting the old campus back into use for



robotics and other Engineering activities.

Brian, an LSU Civil Engineering graduate, serves as project manager at T. Baker Smith in Metairie. He took the students on a professional visit to the old

campus site, including in and around the buildings. Students reviewed the current infrastructure, photographing whatever they noticed that needed improvement for possible future use. Brian guided them in observing both positive and negative structural and infrastructure conditions.

During this first visit, the students took notes on engineering concerns and retrofitting or upgrade opportunities. Throughout the school year, Brian will continue to work with the students to help them generate more extensive concepts and develop solutions for the site. After developing a site plan, the students will make a formal presentation to the





## ► **Building for Success** (Continued)

school administration for converting the old campus into an engineering center. Overall, the old campus appeared in reasonably good condition, although Moldaner recommended a structural engineering to investigate further.

*Touring the junior high campus with Brian Moldaner was a great experience.*

— **Taylor Stradley '18**

The Engineering III students are excited to be working side-by-side with a professional engineer on an ongoing project. Junior Taylor Stradley commented, "Touring the junior high campus with [Brian] was a great experience. He gave us a professional analysis for what was damaged on the building and what caused the structure to fail." Fellow junior Tyler Songy added, "I really look forward to working with him in the future on this project. It's exciting to have an engineer

*It's exciting to have an engineer work with us in that way.*

— **Tyler Songy '18**



*Kirk Maronge II, Tyler Songy, Nicholas Bourgeois, Jason Manning, Wen Wu, Taylor Stradley, Nathan Heath, and Donovan Maher take note as Brian Moldaner points out key details in the junior high campus structure.*



**BUILD** is a periodical publication of the Engineering program at Archbishop Rummel High School. Edited by Sarah Ross, Ph.D., [sross@rummelraiders.com](mailto:sross@rummelraiders.com).

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