



Welcome to the 2016 Fluor Engineering Challenge!

Fluor Corporation is a global engineering and construction firm that designs and builds some of the world's most complex projects. The company creates and delivers innovative and integrated solutions for its clients in engineering, procurement, fabrication, construction, maintenance and project management on a global basis. Every year, Fluor volunteers across the globe share with students our enthusiasm for math and science, how they apply to everyday life and details on career opportunities in engineering. For 50 years, one of the ways we've done this is by celebrating Engineers Week, a time when tens of thousands of companies and volunteers focus on raising public understanding and appreciation of engineers' contributions to society.

This year, Fluor invites you to join us in celebrating Engineers Week by participating in the 2016 Fluor Engineering Challenge "Marble Machine," now available on <http://www.sciencebuddies.org/fluor-challenge>. This year's Fluor Challenge was originally developed by Fluor engineers in our Al Khobar, Saudi Arabia office as part of Fluor's annual company-wide Engineers Week employee competition. With the help of an expert team of scientists and educators at Science Buddies, the Fluor Engineering Challenge allows us to share a truly hands-on and highly engaging experience designed specifically for kindergarten through high school (K-12) students just in time for this year's Engineers Week celebrations!

In honor of Engineers Week, Fluor has added a little fun to this year's Challenge. In addition to competing to have your team's results make it to our global score board, every eligible team that completes the 2016 Fluor Challenge and submits results on the Science Buddies website between February 11 and March 11, 2016 will be entered into a random drawing to win a \$1,000 USD grant for their qualifying community organization or school. To qualify, your organization must be classified as a U.S. 501(c)3 public charity, a public or private primary or secondary school, or an international non-profit, non-government charity with a valid registration number and represent a school or organization that resides in the United States, Canada or one of the countries where Fluor operates a community relations program (see page 2 for details).

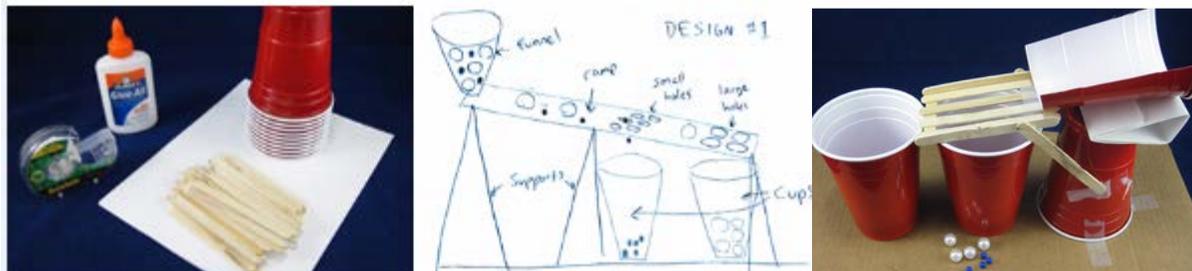
Attached please find the 2016 Fluor Engineering Challenge Toolkit, which includes all the information and resources you need to make participation simple and easy. Included you will find:

- **Project Overview and Prize Drawing (page 2)**
- **Timeline (page 3)**
- **Roles & Responsibilities and Helpful Webpage Links (page 4)**
- **FAQs on the Fluor Engineering Challenge (pages 5-6)**
- **Sample Social Media Posts and Newsletter Story (pages 7-9)**

Fluor is thrilled for this opportunity to share the fun we enjoy every year as we celebrate the great profession of engineering. We hope you and your students find this project to be as enjoyable as we do, both during Engineers Week and throughout the year. For questions, please contact fluorchallenge@sciencebuddies.org.

We are looking forward to having the next generation of engineers at your school or organization participate in the Fluor Engineering Challenge.

Best of luck to you and your students!



Are you ready for the Fluor Engineering Challenge? 2016 Toolkit

Project Overview

Each year, the Fluor Engineering Challenge adapts past Fluor Friendly Competitions into engaging, student-friendly activities. The 2016 Fluor Engineering Challenge, *Marble Machine*, was originally designed by Fluor’s office in Al Khobar, Saudi Arabia. This project uses materials that are readily available and typically inexpensive. All Fluor Challenge instructions are available on the Fluor Engineering Challenge Landing Page at <http://www.sciencebuddies.org/fluor-challenge>. For questions or concerns, please contact fluorchallenge@sciencebuddies.org.

Drawing for Grant from Fluor

All teams that complete the Fluor Challenge and submit their results between February 11 and March 11, 2016 will be eligible to make it onto the Fluor Score Board. Additionally, teams that represent a qualifying school or organization that resides in one of the countries where Fluor operates a community relations contributions program listed below are also eligible to win a drawing for a \$1,000 USD grant from Fluor for their eligible school or organization (see list of eligible countries below).

Eligible Locations*	Type of Prize	Quantity of \$1,000 USD Grants to be Awarded
Houston, TX	Random Entry Drawing	1
Greenville, SC	Random Entry Drawing	1
Orange County, CA	Random Entry Drawing	1
Calgary, Alberta	Random Entry Drawing	1
United States (including Puerto Rico)	Random Entry Drawing	3
Argentina; Australia; Canada; China; India; Kazakhstan; Peru; Philippines; Poland; South Africa; The Netherlands; Trinidad and Tobago; United Kingdom	Random Entry Drawing	3
<p><i>*Students from countries/locations not listed above are eligible to compete in the Fluor Challenge and submit results for the official score board, but are not eligible for the Fluor prizes.</i></p> <p><i>*An organization may have multiple teams entered in the 2016 Fluor challenge, thus increasing the odds of winning, but may only win a total of one grant.</i></p>		10

Drawing for Grant from Fluor, cont.

To qualify to receive a \$1,000 USD prize, an organization must be classified as a U.S. 501(c)3 public charity, a public or private primary or secondary school, or international nonprofit, non-government charity with a valid registration number, in addition to being located in one of the geographic regions listed above. To be entered into the drawing, qualifying organizations must complete the 2016 Fluor Engineering Challenge using the scoring instructions and tools that are provided on the Fluor Challenge Landing Page. Eligible teams that submit results following the requirements outlined on <http://www.sciencebuddies.org/fluor-challenge> between February 11 and March 11, 2016 will automatically be entered into the random drawing. An organization may have multiple teams entered in the 2016 Fluor Challenge, thus increasing the odds of winning, but may only win a total of one grant.

Project Timeline

Monday, January 11, 2016

The 2016 Fluor Engineering Challenge will be made available on the Science Buddies website.

Thursday, February 11 – Friday, March 11: Fluor Engineering Challenge Window

All challenges MUST be performed and reported during this window in order to be eligible to compete to be listed on the Fluor Score Board and, if eligible, to be included in the \$1,000 USD random drawings. *Deadline for entries is 12:00 midnight Pacific Time on Friday, March 11.*

February 21 – February 27: Engineers Week

The only event of its kind, this is a time to celebrate how engineers make a difference in our world, increase public dialogue about the need for engineers and bring engineering to life for kids, educators, and parents. Engineers Week (Engineers Month for some countries) goes beyond being just a week-long event. It's actually a year-round commitment to making a difference. From February 21-27, Fluor offices across the globe observe Engineers Week. The organizing body for Engineers Week is [DiscoverE](#) (formerly National Engineers Week Foundation). DiscoverE's mission is to sustain and grow a dynamic engineering profession through outreach, education, celebration, and volunteerism.

February 24: Global Day of the Engineer

Many countries outside the United States celebrate the engineers during different times of the year. Global Day is a day that everyone, no matter where they are located, can celebrate this exciting profession. This is also the day that Fluor offices around the globe compete in the internal engineering competition that Science Buddies adapts for the following year's Fluor Engineering Challenge!

Thursday, March 31

Drawing winners will be notified via email following verification that eligibility criteria has been met. To be eligible, the benefitting organization must be classified as a U.S. 501(c)3 public charity, a public or private primary or secondary school, or international non-profit, non-government charity with a valid registration number and reside in the United States, Canada or one of the countries where Fluor operates a community relations program (see page 2 for a listing of eligible locations).

April 1 and Beyond

Check back in on the [Fluor Engineering Challenge page](#) to see the results for the top scoring teams and see examples of some innovative student designs. While you're there, take time to explore the other engaging projects offered by Science Buddies including the 2015 Challenge [Balloon Powered Car](#). Be sure to create a free [Science Buddies account](#), to receive notices when the 2017 Fluor Challenge is revealed and learn about other exciting projects and resources!

Roles and Responsibilities for Participating in the Fluor Challenge

1. *Complete the Fluor Challenge with your students during the Challenge window*, February 11 to March 11. Note that you can complete the Fluor Challenge at any time, but we encourage you to join us during our annual celebration of this exciting profession.
2. *Submit your team(s) results* via the special [2016 Fluor Challenge submission link](#) available on either the Fluor Challenge landing page or on the bottom of the Project Procedures page by midnight Pacific Time on March 11, 2016. You will be asked for the following information for each team submission:
 - Team name (team names must be in good taste)
 - Name of your school or organization
 - Email address of teacher or parent to use as a contact
 - Number of students on the team (teams may range from 1-4 students)
 - Age(s) of the student(s)
 - City and postal zip code where team members live or your school or organization is located
 - A photo of the team's marble machine (*required*)
 - Team's final score
3. *Let the world know how your students did!* When posting your results, take advantage of the easy button that allows you to load your details on Facebook and Twitter. Visit the Science Buddies Facebook page at <http://www.facebook.com/ScienceBuddies> or send a tweet using #FluorChallenge to let people see your photos, scores, and interesting Challenge solutions.

Eligible teams that follow the submission guidelines will automatically be entered into a random drawing to win a \$1,000 USD grant for their school or organization. To be eligible to win the award, the benefitting organization must be located in one of the countries/locations listed on page 2 and be classified as a U.S. 501(c)3 public charity, a public or private primary or secondary school, or international non-profit, non-government charity with a valid registration number.

Helpful Webpage Links

- Fluor Engineering Challenge Landing Page for General Public Participants on Science Buddies: <http://www.sciencebuddies.org/fluor-challenge>
Note that past Fluor Challenges and the history of the program can be accessed via tabs on this page
- The Fluor Design a Marble Machine Challenge on Science Buddies: http://www.sciencebuddies.org/science-fair-projects/project_ideas/ApMech_p051.shtml
- Engineering Design Project Guide: <http://www.sciencebuddies.org/science-fair-projects/engineering-design-process-guide.shtml>
- Comparing the Engineering Design Process and the Scientific Method: <http://www.sciencebuddies.org/engineering-design-process/engineering-design-compare-scientific-method.shtml>
- DiscoverE: <http://www.discovere.org/>
- Fluor Corporation: <http://www.fluor.com/sustainability/community/Pages/default.aspx>

FAQs on the Fluor Engineering Challenge

- 1.) ***Do I have to follow the project exactly as outlined to be eligible for the drawing?***
Yes. The project procedures for the [Mable Machine Challenge](#) are clearly laid out in the Procedures Tab of the Project Idea on the Science Buddies website.
- 2.) ***Can we do the project later in the year?***
You are welcome to do the project later in the year, but in order to be considered for the Fluor Engineering Challenge Score Board and prizes (if eligible), you will need to complete the Fluor Challenge and submit your results by midnight Pacific Time on March 11, 2016.
- 3.) ***What kind of credit should I give Fluor and Science Buddies?***
When referring to the project, please use the term Fluor Engineering Challenge and mention that the challenge was created by Science Buddies. We also encourage you to share details about the fun you had on the Science Buddies Facebook page at <http://www.facebook.com/ScienceBuddies> or by sending a tweet using #FluorChallenge or #FluorCorp.
- 4.) ***Will Fluor Cares Volunteers be available to assist us?***
If you have a Fluor office or project site in your community, you are welcome to reach out to invite volunteers to be a part of your project. As you can imagine, our Fluor Cares volunteers assist with many activities, but are only able to directly engage a limited number of students in the immediate locations we directly serve. In fact, Fluor developed the Fluor Engineering Challenge in partnership with Science Buddies because it allows us to share this exciting resource with students and youth development leaders across the globe!
- 5.) ***Do I need to submit results on my students' scores to be eligible for the \$1,000 USD random drawing?***
Yes. Please follow the guidelines for submitting your results. All eligible submissions received that meet the requirements will automatically be entered into the \$1,000 USD random drawing. See page 2 for detailed eligibility requirements.
- 6.) ***What are the qualification requirements to receive the \$1,000 USD award?***
Benefitting organization must be classified as a U.S. 501(c)3 public charity, a public or private primary or secondary school, or international non-profit, non-government charity with a valid registration number and reside in one the countries where Fluor operates a community relations program (see page 2).
- 7.) ***Can I submit results for more than one team?***
Yes! Each team that completes the Challenge is eligible to submit a score. Please note that an organization may have multiple teams entered in the 2016 Fluor Challenge, thus increasing the odds of winning, but may only win a total of one grant.
- 8.) ***What standards were applied to adapt this project for the classroom?***
These materials were created using the Engineering Design Process, which is a critical part of the Next Generation Science Standards. For more information, see the [Science Buddies Engineering Design Project Guide](#) and [Helping Teachers Approach Next Generation Science Standards](#).

9.) ***Why is Fluor offering this?***

Fluor has been celebrating Engineers Week for 50 years, and through the Fluor Engineering Challenge we are excited to provide a new tool for students to perform a real-world, engineer-designed project in their local classrooms or community organizations. The Fluor Engineering Challenge uses the Engineering Design Process and can help teachers adhere to the new Next Generation Science Standards.

10.) ***Can elementary school students compete?***

Any K-12 student teams, whose organizations are located in the eligible countries listed on page 2, can complete the Fluor Challenge and submit results per the guidelines are eligible for the \$1,000 USD random drawing award.

11.) ***We are not located in one of the countries that are eligible to win the drawing. Can we still participate?***

Yes! We invite participation from students across the globe. All complete submissions that are received between February 11 and March 11 are eligible to be recognized on the Fluor Score Board. The random drawing for grants will only be available for organizations that meet the eligibility requirements outlined on page 2.

12.) ***Can we hold the project before February 11?***

The Fluor Engineering Challenge will be available year-round, however to be eligible to be listed on the Fluor Score Board and for a chance to win the \$1,000 USD award (if eligible) you must complete the project and submit your results during the official Fluor Challenge window of February 11 – March 11, 2016.

13.) ***What other locations will be participating in the Fluor Challenge?***

Science Buddies is offering the Fluor Engineering Challenge to all its users, including students in the United States, Canada and across the globe. Top scores will be posted by the end of March, so you'll have the chance to see how your team competed against students from many diverse communities! As noted, only those organizations listed on page 2 are eligible for the drawing.

14.) ***What are the basic principles that are explored with this year's Fluor Challenge?***

This year's Fluor Challenge explores gravitational potential energy, kinetic energy, energy conversion and simple machines.

15.) ***I've noted that the toolkit includes suggested posts for social media. Can we include pictures of the students in our posts?***

Yes, we love seeing pictures of students and their projects. We ask that when posting to social media, you adhere to your organizations' individual policies on posting student photos. See page 7 of this toolkit for more suggestions on social media engagement.

16.) ***Who can I contact if I have any questions or concerns?***

For questions or concerns, please contact fluorchallenge@sciencebuddies.org.

Social Media Engagement



Share your enthusiasm for the Fluor Engineering Challenge through Twitter or the Science Buddies Facebook page at <http://www.facebook.com/ScienceBuddies>. Please be sure to use the special Twitter handle we have created for this project, #FluorChallenge. Fluor’s Twitter account is @FluorCorp.

Sample Posts

- **[Insert name of your school or organization]** is celebrating Engineers Week by taking the 2016 Fluor Engineering Challenge. Best of luck to **[insert name of your school’s or organization’s]** students, and all competitors!
- **[Insert name of your school or organization]** students are designing a marble sorting machine for a chance to win a grant for our **[insert word “school” or “organization”]** through the 2016 Fluor Engineering Challenge. Thanks to our friends at Fluor for a fun engineering challenge designed by your own engineers!
- Congratulations to the **[insert name of team in picture]** team at **[insert name of your school or organization]**! They are competing to win a grant for **[insert name of your school or organization]** and just earned a score of **[insert score]** on the 2016 Fluor Engineering Challenge by building an awesome marble machine.
- We are proud of the **[insert name of team in picture]** team at **[insert name of your school or organization]**! They’ve designed a very cool marble machine for the 2016 Fluor Engineering Challenge. Thanks for the chance to compete for a grant for our **[insert word “school” or “organization”]**, Fluor!

SAMPLE NEWSLETTER COPY

Fluor is Helping Students at [LOCAL SCHOOL OR ORGANIZATION NAME] Celebrate Engineers Week (or Build Real-World Engineering Solutions)

Students at [local school or organization name] are celebrating Engineers Week by taking the 2016 Fluor Engineering Challenge. Using limited materials and their imaginations to build the best marble sorting machine possible, students are designing devices that can separate two different size spheres using cups, paper and wooden craft sticks. They are joining with teams from all over the globe to see who can post the best score this year.

The Fluor Engineering Challenge helps educators meet the latest standards for science and engineering literacy. This year's Fluor Challenge, "Marble Machine," was originally developed by engineers from Fluor's Al Khobar, Saudi Arabia office as part of the global company's annual employee competition held in celebration of Engineers Week. With the help of an expert team of scientists and educators from Science Buddies, this employee competition has been adapted to provide students the opportunity to experience how real-life engineers design solutions, and to show students first-hand how fun engineering can be.

"The annual Fluor Engineering Challenge, designed by and for employees, has been an important part of Fluor's 50-year tradition of celebrating Engineers Week" said Glenn Gilkey, executive vice president of Human Resources for Fluor Corporation, who is a licensed professional engineer in the state of Texas. "Thanks to our innovative partnership with Science Buddies, we're pleased to be able to share this fun and engaging resource with students across the globe."

<<Insert details on your local event and a quote from your local spokesperson>>

For 50 years, Fluor has been proud to support Engineers Week, one of the world's largest professional outreach programs that celebrates and highlights the often overlooked role engineers play in our lives every day. To learn more about this year's Fluor Engineering Challenge and explore other project ideas adapted from previous Fluor employee competitions, visit www.sciencebuddies.org/fluor-challenge.

Fluor Corporation is a global engineering and construction firm that designs and builds some of the world's most complex projects. The company creates and delivers innovative and integrated solutions for its clients in engineering, procurement, fabrication, construction, maintenance and project management on a global basis. Fluor invests in programs that inspire and prepare students to excel in science, technology, engineering and math (STEM) subjects and disciplines, and is committed to the development of our next generation workforce. Since 2013, more than 170,000 primary- and secondary-aged students have received more than 6 million hours of STEM training and enrichment made possible through Fluor's financial and employee volunteer support of community organizations. To learn more visit www.Fluor.com.

About [Local School or Organization] [insert boilerplate]

For further information contact:

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