2013 K'NEX Classroom Challenge
OFFICIAL RULES

CONTEST DATES: November 9, 2012 – February 15, 2013.

NO PURCHASE NECESSARY TO ENTER OR WIN. Chance of winning is dependent on the number of entries received. A purchase of a K'NEX product does not increase chances of winning.

HOW TO ENTER:

- Contest is open to classrooms and student groups, grade 1 through grade 9.
- Register between November 9, 2012, 9:00 am and December 14, 2012, 11:59PM EST. Entries must be time stamped by February 15, 2013. The Sponsor's computer is the official time keeping device for the Contest.
- Classroom/student group challenges are as follows:

The Farm (Grades 1 & 2 ages)

Farms are exciting places! Your challenge is to build a farm using K'NEX pieces. Include animals, people, tractors and other farm equipment, buildings, fences, crops… anything you like! Your farm can be ultra-modern, or if you prefer, a farm as it would have appeared 100 years ago. Let your creativity be your guide.

If you do not live on or near a farm, why not look in books or on the internet to find out more about farms and farm equipment before you start building?

Complete the following and submit them with up to 6 digital photos of your farm:

- A list of the animals included on your farm.
- How many of each animal did you include?
- Look up information about farms in your state or country. What crops and/or animals are raised in your state?
- If you wanted to mount your farm on a piece of plywood, what size piece would you need? Describe the process you used to determine the size of the piece of plywood you would need.

The Water wheel (Grades 3 & 4)

Before the industrial revolution, all machinery was driven by hand, by animal power, by wind power, or by water power. A stream would be diverted so that the water pushed paddles on a water wheel, which then drove machinery via axles, gears, or other simple machines.

Your challenge is to build a water wheel, using K'NEX pieces, which uses water to drive a hammer or some other useful device. If you do not have any of the special K'NEX gear wheels, do not worry – you can make your own gear wheels by attached eight short green rods onto a white connector.

Complete the following and submit them with up to 6 digital photos of your water powered device.

- List the simple machines that are used in your water powered device. Describe how each simple machine multiplies force, multiplies distance, changes the direction of an applied force, or some combination of these three.
- Carefully pour water on the blades of your device and include a picture of this process with the digital photos you submit.
- Complete some research of water wheels and describe three different ways they have been used through history.
- How many times will your water wheel turn if you pour 2 liters of water over the blades of the wheel? (Complete three trials to determine an average.)

<u>The Mountain Climber</u> (Grades 5 & 6)

Cable cars, also known as aerial tramways, have been used around the world for hundreds of years, to carry tourists and skiers to the tops of mountains. Your challenge is to design and build a cable car system with K'NEX pieces. The cable car must carry passengers up a cable that is 3 meters long or more, at an angle of at least 30 degrees. You can use a ball of string in addition to your K'NEX pieces, and a K'NEX motor would be useful, but is not essential.

Ideally, your cable car should be able to seat at least 6 passengers protected from the weather, and should dock inside a K'NEX cable car station at the top and bottom of the slope. You can have two members of your team hold the stations in place to keep the stations from moving while the cable car is moving.

Complete the following and submit them with up to 6 digital photos of your cable car system:

- Measure the angle formed by the cable as it extends up the mountain.
- Measure the length of the cable and the horizontal distance between the two K'NEX Cable Car Stations. Which measurement is larger? Explain why?
- Describe how you designed the cable car for safety.
- How long does it take the cable car to move up to the mountain? How fast does the cable car move? How could you change your system to increase the speed of the cable car?
- Describe the process your team used to solve this challenge activity.

<u>The Olympic Stadium</u> (Grades 7 to 9)

You have been asked to enter an engineering competition to design the main athletics stadium for the 2016 Olympic Games in Rio de Janeiro, Brazil. Your design will take the form of a K'NEX model of the stadium you propose, to a scale of $1/200^{th}$ or larger. (This means that the size of the athletics field inside your stadium model must be at least 90 cm by 40 cm). To enable athletics events to continue in the rain, your stadium must also have a roof which can be opened and closed.

The judges of this engineering competition are seeking an innovative, eye-catching design, which will also be quick to build and relatively low cost.

Complete the following and submit them with up to 6 digital photos of your stadium and roof mechanism:

- A short written description of why you believe your stadium design meets the above description.
- A description of the science behind the mechanical system you used to open and close the roof of the stadium.
    - What simple machines, etc. were employed?
    - Do they multiply force, multiply distance, and/or change the direction of the applied force?
    - What is the mechanical advantage of the mechanical system? (Show the mathematics you used to determine the mechanical advantage.)
    - If there is an input force of 2 Nm applied to the system, calculate the output force that would be generated to operate the roof system. (Show the mathematics used.)
- Show one digital picture that demonstrates that your roof is able to hold a 2 pound mass.
- Determine a cost for each of the K'NEX pieces and demonstrate that you are able to find the total cost of the parts used to build the stadium. (Show the mathematics used.)
    - Describe how you would design a spreadsheet to compute the total cost of the stadium.

- **Enter** your class or student group at **http://www.knex.com/Educators/classroom_challenge_info.php .** Upon entry you will receive an email with a link to the official entry form, including electronic upload of your photos and written description. *(Make sure your pictures are no smaller than 300 dpi and that your model is displayed against a solid color background. Photos should be no larger than 10 MB each, and should be sent in a .jpg, .png, or .gif format. Please send up to six (6) pictures per entry.*
- Complete and submit the entry form electronically along with up to six pictures of your K'NEX model and with the required documentation written by your students. Entry requires approval from authorized school official. For your submission to be eligible, you must submit both the photos and the required documentation.
- If unable to submit electronically or have any questions during the submission process, please contact the Sponsors at **1-888-ABC-KNEX** (1-888-222-5639).

*** As a thank you for your interest in this contest, any teacher or student group leader can use promotional code knch13 for 25% off all set purchases at knex.com, knexeducation.com, or via written purchase order approved by K'NEX, and placed no later than February 14, 2013.**

All entries and submitted materials (submission forms and photos) become the property of the Sponsor and will not be returned.

PRIZES:
The nine classrooms chosen as 2013 K'NEXpert Classroom Challenge Award Winners will receive:

- $350 Shopping Spree at www.knexeducation.com to be used in 2013 for K'NEX Education Sets
- FREE age-appropriate K'NEX building set for each child in the winning classroom ($20.00 value)
- 2013 K'NEXpert Classroom Challenge Award Sign with photo of winning model and class (if provided).
- Classroom photo gallery page on knexeducation.com, where we will display pictures of the winning classroom students with their model.

ELIGIBILITY:
Contest is open to all elementary school and student groups/organizations (grades 1 – 9) in the United States, except where noted below. Classrooms attended by children of Sponsor and/or their parents, subsidiaries, or affiliated entities are not eligible to participate. Entry requires approval from Authorized School Official.

SPONSOR: The sponsor of this contest is: K'NEX Limited Partnership Group, 2990 Bergey Road, Hatfield, PA 19440.

JUDGING PROCEDURE AND NOTIFICATION OF CONTEST WINNERS:

Nine winning classrooms/groups (grades 1 - 9) will be chosen by a panel of judges, comprised of a select group of K'NEX Employees, who will base their decision on creativity (25%), uniqueness (25%), detail (25%) and the accuracy of detail provided in description (25%). K'NEX will notify the nine (9) winning classroom teachers / student group leaders by email and/or phone on or about March 22, 2013.

After the notification is complete, an authorized representative of the winning school will be required to sign an affidavit of eligibility and liability release, and, where permitted, a publicity release. If winning school is found to be in violation of these Official Rules, if prize notification letter or e-mail is returned as undeliverable, or if the signed affidavit of eligibility and liability release is not returned to K'NEX within **5** days, prize will be awarded to the next highest scoring entrant. Winners who are discovered during prize verification to have entered or attempted to enter more than once may be disqualified at the sole discretion of the judges. Winners agree to use of name, address, likeness and/or prize information for promotional purposes in any medium without additional compensation to the extent permitted by law.

All decisions made by the panel of judges are final and non-appealable.

MISCELLANEOUS:
Void in Puerto Rico, U.S. territories and possessions and where prohibited. By participating in this Contest, each entrant accepts the conditions stated in these Official Rules, agrees to be bound by the decisions of the judges in selecting winners, and warrants that he/she/it is eligible to participate in this Contest. **By entering this Contest, winners agree to release Sponsor and any parent, subsidiary, affiliated or successor entities, and its or their respective directors, officers, employees, and agents, including, without limitation, its or their advertising and promotion agencies, from any and all liability, loss, actions, demands, claims, or damages arising from or in connection with participation in this Contest or the awarding, receipt, and/or use or misuse of any prize, or participation in any prize-related activities. Neither Sponsor, nor any parent, subsidiary, affiliated or successor entities or its or their respective directors, officers, employees or agents will have any liability or**

responsibility for any injury, loss, action, demand, or claim or other liability of any kind arising in connection with participation in the Contest or any prize awarded. This Contest will be governed by the internal laws of the State of Delaware. Any and all legal actions or claims arising in connection with this Contest must be brought in a court of competent jurisdiction within the United States of America.

GENERAL TERMS AND CONDITIONS:
Sponsor and judges are not responsible for lost, late, mutilated, illegible, incomplete, garbled, or misdirected entries, mail or communications, for errors, omissions, interruptions, deletions, defects, or delays in operations or transmission of information, in each case whether arising by way of technical or other failures or malfunctions of computer hardware, software, communications devices, or transmission lines, or data corruption, theft, destruction, unauthorized access to or alteration of entry materials. Sponsor and judges are not responsible for electronic communications which are undeliverable as a result of any form of active or passive filtering of any kind, or insufficient space in entrant's e-mail account to receive e-mail messages. Sponsor disclaims any liability for damage to any computer system resulting from participation in, or accessing or downloading information in connection with this Contest, and reserves the right, in its sole discretion, to cancel, terminate or suspend this Contest should any virus, bug, bots, unauthorized human intervention, or other causes beyond Sponsor's control corrupt or otherwise affect the administration, security, fairness or proper conduct of the Contest. **CAUTION: Any attempt by an entrant to deliberately damage any web site or undermine the legitimate operation of this Contest is a violation of criminal and civil laws. Should such an attempt be made, Sponsor reserve the right to disqualify and/or seek damages from any such entrant to the fullest extent permitted by law.** Sponsor reserves the right to change the prize offerings at any time, but will not be less than the estimated value of current prizes. Sponsor also reserve the right, at its sole discretion, to disqualify any entrant from any other promotion conducted by Sponsor, now or in the future, if entrant's fraud or misconduct affects the integrity of this Contest. In the event this contest is compromised by virus, bugs, unauthorized intervention or other causes beyond the control of Sponsor which, in the sole opinion of the Sponsor, corrupt or impair the administration, security, fairness or proper play of the Contest, Sponsor reserves the right as its sole discretion to suspend or terminate the Contest.

Privacy Note: K'NEX is committed to protecting the privacy of children. Entry information will only be used to administer this Contest or otherwise in accordance with our Privacy Policy. Information on the winning classroom, including school name, state, grade level, photos of the model, and class photo, will be posted online at Sponsors' websites. No personal information on students will be used except as needed to administer this Contest or in accordance with Sponsors' Privacy Policy. By entering the Contest you agree to receive communications from the Sponsor regarding Contest.

IDEAS BUILT WITH EXISTING K'NEX PIECES AND COMPONENTS
Entries, including entries related to a new construction, toy or other item (the "Device"), must be constructed using existing K'NEX parts and sets (or, as noted, string) . The use of adhesives is not permitted. **All designs submitted (submission forms and photos) become the exclusive property of Sponsor, and entry materials will not be returned.** Entrant acknowledges and agrees that by submitting this entry, it hereby transfers and assigns all rights in the Device under any copyright, patent or other intellectual property laws to K'NEX. Sponsor may illustrate the Device in its catalogs, instruction books, websites, or in any other media now known or later invented, and may otherwise inform its customers and potential customers of the Device, whether or not entry is selected as a winner. Sponsor, and any parent, subsidiary,

affiliated or successor entities, and any of its or their present or future customers, may construct and use the Device without any further authorization and without any payment or royalties of any kind to the School/Group.

WINNERS LIST:
To obtain the list of winners, visit www.knex.com on or about April 12, 2013.

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