



Congress of the United States  
House of Representatives

Washington, DC 20515

January 31, 2014

Dear High School Principal [and Teachers]:

I am writing to invite all high school students from the Third Congressional District of Pennsylvania to participate in the first annual Congressional Science, Technology, Engineering and Math (STEM) Academic Competition, "The House STEM App Challenge." This new competition is designed to engage student's creativity and encourage their participation in STEM education fields. Established by Members of the U.S. House of Representatives in 2013, this competition is a nationwide event that allows students from across the country to compete by creating and exhibiting their software application, or "app," for mobile, tablet, or computer devices on a platform of their choice. Students entering the competition must provide a YouTube video demo explaining their app and what they learned through this competition process.

Students may register online for the competition beginning February 1, 2014 until the entry submission deadline, April 30, 2014. Enclosed you will find registration information, competition rules, FAQ, an informative flyer and a number of resources available for students. I ask that you please consider posting the flyer around your school to promote awareness and hopefully participation.

The submitted apps will be judged by an appointed panel of individuals within the academic, software and entrepreneurial fields. The winning student's app in each participating congressional district will be featured on the U.S. House of Representatives' website ([www.House.gov](http://www.House.gov)), as well as on display in a U.S. Capitol exhibit. In order to honor and applaud all participants for their efforts, we will be having a district awards ceremony. Details regarding the date, time and location of the ceremony will be mailed to you within the next few weeks and will also be posted on my website, [www.kelly.house.gov](http://www.kelly.house.gov), once available.

I hope that you will encourage your students to take advantage of this opportunity and participate! Should you or your students have any questions regarding the competition, please contact Stephanie Stevenson at [Stephanie.Stevenson@mail.house.gov](mailto:Stephanie.Stevenson@mail.house.gov) or (724)282-2557.

Sincerely,

U.S. Representative Mike Kelly  
Third District, Pennsylvania

# HOUSE STUDENT APP CONTEST

## CONTEST RULES

### Can I Participate?

1. Members of Congress must opt-in for their district to participate in this competition. If a Member does not opt-in, constituents in their district will be ineligible to participate. To find out if whether your Representative is participating, you may contact them using the information available at: <http://www.house.gov/>.
2. **To determine if your residence or school is in a participating district go to <http://www.house.gov/> and enter your zip code under FIND YOUR REPRESENTATIVE.**
3. The Competition is open only to high school students who reside in a participating district or who are eligible to attend public high school in that district. Individuals submitting on behalf of teams must meet the eligibility requirements for individual Contestants.
4. Participants must be at least 13 years old as of February 1, 2014.
5. Participants may compete individually or in teams of up to 4 students. If students attend school outside of their home congressional district, they may compete in either their home district or their school district. If competing as a team, 2 members of the team must be from the same district.
6. The Competition is subject to all applicable United States federal laws and regulations. Participation constitutes entrant's full and unconditional agreement to these Official Rules.

### When Do I Enter?

1. Between FEBRUARY 1ST, 2014 at approximately 12 PM Eastern Daylight Time ("EDT") and April 30TH, 2014 at 12 PM EST (the "Competition Submission Period").
2. Administrator's computer is the official time keeping device for this Competition.

### How Do I Enter?

#### A. Register:

1. During the Competition Submission Period, create an account on [www.challengepost.com](http://www.challengepost.com) and register for the House Student App Contest. Upload the entry form on the site so your Member of Congress can communicate with you during the Submission Period.

#### B. Online Requirements (on ChallengePost.COM):

1. Each Contestant will be required to provide the following as part of the Submission:
  - A link to the Application Demonstration Video. ChallengePost supports YouTube or VIMEO. Please note that your entry may be judged in its entirety based on this video. It is important to demonstrate the scope and quality of your application in this video. No more than two minutes in length.
  - A link to the Developer Video. ChallengePost supports YouTube or VIMEO. The participant will describe how they created the app and what they learned. No more than one minute in length.
  - An entry form
2. After the Submission Period has ended, the Submission cannot be modified in any way before the completion of judging.
3. All submissions must be in English.
4. An individual may appear on only one entry, either alone or as part of a team.

5. Submissions must not be indecent, defamatory, in obvious bad taste, demonstrate a lack of respect for public morals or conduct or adversely affects the reputation of congressional districts.
6. Submissions must not: a) be illegal under applicable laws; b) depict hatred, defame, threaten a specific community in the society or incite violence; c) contain vulgar language or violence; or d) contain pornography, obscenity or sexual activity.
7. Submissions must a) be original; b) be solely owned by Contestant such that no other party has any rights or interest, whether known or unknown; and c) not violate the Intellectual Property, common law or privacy rights of other parties.
8. Contestants will own the intellectual property rights to their Submission, but will grant to Congress and Administrator a royalty free license to, without limitation: a) Post the Submissions online; b) Make the Winners available for the course of the Competition and 1 months after the conclusion of the Competition Submission Period; and c) Utilize the Submissions for noncommercial purposes for a period of 12 months after the conclusion of the Competition Submission Period

#### C. Display of Submissions

1. Members have the right to display submitted material on their web site on [WWW.HOUSE.GOV](http://WWW.HOUSE.GOV).
2. Each district winner will be displayed on an overall contest site on [WWW.HOUSE.GOV](http://WWW.HOUSE.GOV) and [CHALLENGE.GOV](http://CHALLENGE.GOV).

### Winner Selection and District Judging Criteria

1. Application Demonstration Videos will be viewed by District Judges based on the criteria identified below to select finalists. Then the finalists will be judged again on the criteria identified below.
2. The Judges have the right to request access to the Application and source code in person or via any reasonable manner to verify that the Application functions and operates as stated in the Submission. Failure by a Contestant to honor such a request will result in the Submission's immediate disqualification.
3. Awards will be judged based on the following criteria:
  - a. Quality of the idea (including creativity and originality)
  - b. Implementation of the idea (including user experience and design)
  - c. \*Demonstrated excellence of coding and programming skills.
4. \*Members may elect to judge entries that are conceptual and do not have a working program. Members making that election will notify their contestants.
5. District Staff reserve the right to substitute or modify the judging panel at anytime for any reason. Judges do have the right to withdrawal without advance notice in the event of extenuating circumstances beyond their control. Judges will be fair and impartial. A judge may elect to recuse him or herself from judging a Submission, if in the judge's sole discretion it is not appropriate for him or her to judge that particular Submission because of a past or current relationship with that particular Contestant. A Submission will not be at a disadvantage if one or more judge recuses himself or herself.
6. Odds of winning depend on the number of eligible Submissions received and the quality of the Submissions. The approximate dates for the judging panel are between May 1ST, 2014 at 12PM EST and May 30th, 2014 at 12PM EST

### Prizes

1. Each district may provide prizes to district winners. A Member office may provide authorized gifts or awards of nominal value as part of the app competition. Gifts authorized by the Members' Handbook include certificates, folders, and frames of a nominal value.
2. If the participating Member decides to host an awards ceremony, finalists will get the chance to present their apps to Judges, Congressional staffers and community leaders. The winning app in each district will be featured on the House.gov website.

3. If the winner is not able to attend the district awards ceremony, the prize will be mailed to the winner's address within 45 days of receipt of the signed affidavit(s) of eligibility and liability/publicity release(s) form(s).

### **Verification of Potential Winners**

1. ALL POTENTIAL COMPETITION WINNERS ARE SUBJECT TO VERIFICATION BY JUDGES WHOSE DECISIONS ARE FINAL AND BINDING IN ALL MATTERS RELATED TO THE COMPETITION. Potential winners must continue to comply with all terms and conditions of these Official Rules. The potential winners will be notified on or about MAY 1ST, 2014. The potential winners will be required to sign and return to Congressional staff within ten (10) business days of the date notice is sent, an affidavit of eligibility, and liability/publicity release (except where prohibited) in order to claim his/her prize if applicable.

### **Entry Conditions and Release**

By entering, you agree to the following conditions and release: Each Contestant agrees to comply with and be bound by these Official Rules and the decisions of the Administrators, and/or the Competition judges which are binding and final in all matters relating to this Competition.

### **Publicity**

Except where prohibited, participation in the Competition constitutes winners' consent to Administrators' and their agents' use of winner's name, likeness, photograph, voice, opinions and/or hometown and state for promotional purposes in any media, worldwide, without further payment or consideration.

### **General Conditions**

1. Administrators reserve the right to cancel, suspend and/or modify the Competition, or any part of it, if any fraud, technical failures or any other factor beyond Administrator's reasonable control impairs the integrity or proper functioning of the Competition, as determined by Administrators in their sole discretion. Administrators reserve the right in their sole discretion to disqualify any individual or Competitor it finds to be tampering with the entry process or the operation of the Competition or to be acting in violation of these Official Rules or any other promotion or in an unsportsmanlike or disruptive manner.
2. Any attempt by any person to deliberately undermine the legitimate operation of the Competition may be a violation of criminal and civil law, and, should such an attempt be made, Administrators reserves the right to seek damages from any such person to the fullest extent permitted by law. Administrator's failure to enforce any term of these Official Rules shall not constitute a waiver of that provision.

### **Limitations of Liability**

The Administrators are not responsible for:

- a. any incorrect or inaccurate information, whether caused by entrants, printing errors or by any of the equipment or programming associated with or utilized in the Competition;
- b. technical failures of any kind, including, but not limited to malfunctions, interruptions, or disconnections in phone lines or network hardware or software;
- c. unauthorized human intervention in any part of the entry process or the Competition;
- d. technical or human error which may occur in the administration of the Competition or the processing of entries; or
- e. any injury or damage to persons or property which may be caused, directly or indirectly, in whole or in part, from entrant's participation in the Competition or receipt or use or misuse of any prize.

If for any reason an entrant's Submission is confirmed to have been erroneously deleted, lost, or otherwise destroyed or corrupted, entrant's sole remedy is to provide another Submission.

**Privacy**

Administrators collect personal information from you when you enter the Competition. The information collected is subject to the privacy policies located at <http://challengepost.com/privacy> and [http://www.house.gov/content/site\\_tools/privacy\\_policy.php](http://www.house.gov/content/site_tools/privacy_policy.php)

**Competition Results**

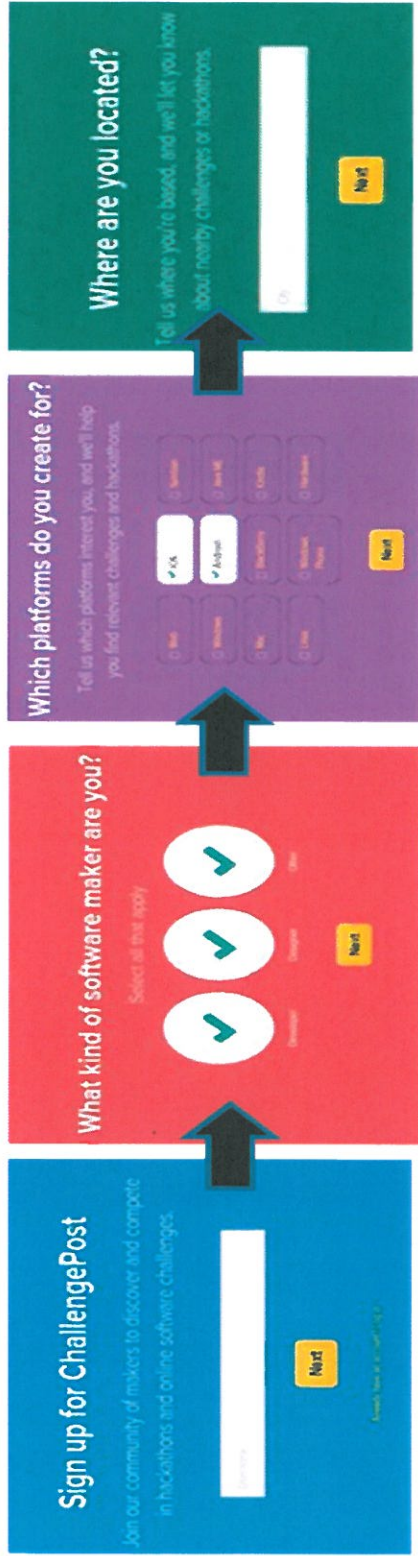
For results of the competition go to [WWW.House.GOV](http://WWW.House.GOV) on or about June 15, 2014.

**Administrators**

Administrators: (1) Committee on House Administration, 1309 Longworth House Office Building, Washington DC 20515; and (2) ChallengePost, Inc., 425 W. 13th Street, Suite #504, New York, NY 10014.

# Registering/Signing up for an account on ChallengePost

Visit [www.ChallengePost.com](http://www.ChallengePost.com)



Before you get started, you'll need to verify the email for your ChallengePost account.

ChallengePost Find Challenges Post Challenges

Build software to solve challenges.

Find challenges

Unique challenges: Turn ideas to concepts and code. (100k+ in a weekend)

Make an impact: Create software that makes a difference.

Prizes and recognition: Get your app noticed by companies as well as the public.





CONGRESSMAN MIKE KELLY INVITES ALL HIGH SCHOOL STUDENTS FROM THE  
THIRD CONGRESSIONAL DISTRICT OF PENNSYLVANIA TO PARTICIPATE IN THE  
FIRST ANNUAL

## CONGRESSIONAL STEM COMPETITION

ESTABLISHED BY MEMBERS OF THE U.S. HOUSE OF REPRESENTATIVES IN 2013,  
THIS COMPETITION IS A NATIONWIDE EVENT THAT ALLOWS STUDENTS FROM  
ACROSS THE COUNTRY TO COMPETE BY CREATING AND EXHIBITING THEIR  
SOFTWARE APPLICATION, OR "APP," FOR MOBILE, TABLET, OR COMPUTER  
DEVICES ON A PLATFORM OF THEIR CHOICE.

REGISTRATION BEGINS ON FEB 1, 2014

### FOR DETAILS & RESOURCES:

@EDnewsPA03 #HouseAppContest  
Kelly.house.gov (724) 282-2557

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# House App Contest



## *Resources for Students and Teachers*

- <http://code.org/>
- <http://racket-lang.org/>
- <http://scratch.mit.edu/>
- <http://smallbasic.com/>
- <http://www.teachkidstoprogram.com/>
- <http://phrogram.com/>
- <http://www.codecademy.com/>
- <http://www.alice.org/index.php>
- <http://appinventor.mit.edu/explore/hour-of-code.html>
- <https://developer.apple.com/programs/ios/>
- <http://developer.android.com/index.html>



# Alice: A Fresh Approach to Teaching Computer Science

Carnegie Mellon University

Project Director, Randy Pausch (pausch@cmu.edu)



www.alice.org

## Creating Movies and Games as a Motivation for Programming

Computer Science enrollments dropped 23% last year. In a country that is increasingly dependent on computing, it is critical that we reverse this trend. Introductory Computer Science courses often draw examples and assignments from the business computing and systems building domains. These contexts are intended to ground computer science concepts in a domain that makes the problems relevant to students, yet many students do not begin to see the relevance of their computer science classes until their sophomore and junior years. Rather than relying on business and systems building examples, we have created a programming environment that allows students to learn basic computer science while creating animated movies and simple video games where students control the behaviors of 3D objects and characters in a virtual world. Alice is freely available and open source.

## Alice has been Formally Shown to Improve Grades and Retention

Alice has been formally shown to help at-risk students (those with a weak math background and/or no prior programming experience) succeed in Computer Science\*. At-risk students who take an Alice class either prior to or concurrent with CS1 perform as well as students who are not at-risk, and substantially better than other at-risk students. Prentice-Hall has published a textbook based on Alice for college-level introductory programming.

### Alice Improves Student Performance in CS1:

Performance of at-risk students:	Grade in CS1	Take CS2?
Without Alice	C	47%
With Alice	B	88%

\* Moskal, M., D. Lurie, and S. Cooper, Evaluating the Effectiveness of a New Instructional Approach. In *Proceedings of 2004 SIGCSE Conference*, (Norfolk, VA), 75-79.

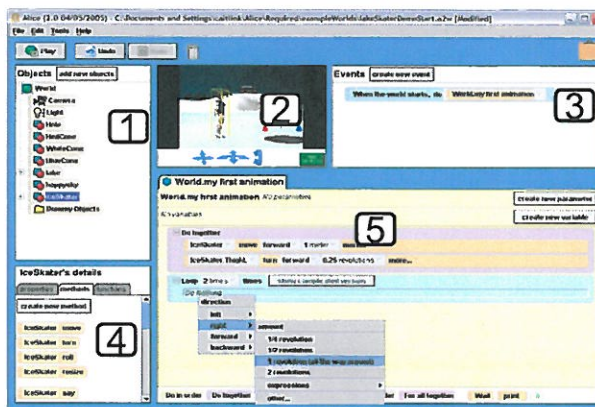


The Alice gallery contains more than 700 characters and objects.

## Alice: Visible Data, and No Syntax!

In Alice, students construct programs by dragging and dropping tiles that represent words in a programming language; Alice removes the possibility for syntax errors, a common source of frustration for beginning programmers. Students can watch their programs execute, which enables students to see where they have made mistakes. Unlike many programming environments for novices, Alice allows students to gain experience with all the programming constructs typically taught in programming courses.

## A Quick Tour of Alice



- 1 The object tree displays a list of objects in the current Alice world and allows students to select objects.
- 2 The scene editor allows students to lay out objects in their 3D worlds
- 3 Students use events to associate methods with mouse clicks, object collision, etc.
- 4 The details area displays methods, functions, and data for the selected object.
- 5 Students can build programs by dragging methods from the details area.

## Schools Using Alice

- Bucknell University
- California Lutheran University
- California State University at Humboldt
- Camden County College
- Carnegie Mellon University
- Clemson University
- Colorado School of Mines
- Community College of Philadelphia
- Cornell University
- Duke University
- Georgetown College
- Haverford College
- Ithaca College
- Manor College
- Mississippi Valley State University
- Plymouth State University
- Saint Edward's University
- Saint Joseph's University
- Saint Lawrence College
- San Diego State University
- Sierra Nevada College
- Southwestern University
- Tompkins Cortland Community College
- University of Colorado
- University of Illinois
- University of Mississippi
- Virginia Polytechnic Institute
- And many high schools

Alice: a revolutionary way to teach programming



A free gift to you from  
**Carnegie Mellon**

# PROGRAMMING WITH SCRATCH

Most people view **computer programming** as a tedious, specialized activity, accessible only to those with advanced technical training. And, indeed, traditional programming languages like Java and C++ are very difficult for most people to learn.

**Scratch**, a new graphical programming language, aims to change that. Scratch takes advantage of advances in computing power and interface design to make programming more engaging and accessible for children, teens, and others who are learning to program. Key features of Scratch include:

- **Building-block programming.** To create programs in Scratch, you simply snap graphical blocks together into stacks. The blocks are designed to fit together only in ways that make syntactic sense, so there are no syntax errors. Different data types have different shapes, eliminating type mismatches. You can make changes to stacks even as programs are running, so it is easy to experiment with new ideas incrementally and iteratively.



- **Media manipulation.** With Scratch, you can create programs that control and mix graphics, animations, music, and sound. Scratch extends the media-manipulation activities that are popular in today's culture – for example, adding programmability to Photoshop-style image filtering.



- **Sharing and collaboration.** The Scratch website provides inspiration and audience: you can try out other people's projects, re-use and adapt their images and scripts, and post your own projects. The ultimate goal is to develop a shared community and culture around Scratch.



Scratch offers a **low floor** (easy to get started), **high ceiling** (ability to create complex projects), and **wide walls** (support for a wide diversity of projects). In developing Scratch, we put high priority on simplicity, sometimes even sacrificing functionality for understandability.

As students work on Scratch projects, they have opportunities to learn important **computational concepts** such as iteration, conditionals, variables, data types, events, and processes. Scratch has been used to introduce these concepts to students of many different ages, from elementary school through college. Some students transition to traditional text-based languages after getting introduced to programming with Scratch.

Scratch is built on top of the **Squeak** programming language. It was inspired by previous work on **Logo** and **Squeak Etoys**, but it aims to be simpler and more intuitive.

Scratch is an **open-source** but **closed-development** project. The source code is freely available, but the application is developed by a small team of researchers at the MIT Media Lab.

Lifelong Kindergarten Group, MIT Media Lab

# Make Computer Science in K-12 Count!



Computer science is driving job growth and innovation throughout our economy and society. More than half of projected jobs in STEM fields are in computing occupations; these occupations dominate “help wanted” ads; and computer science is one of the hottest degrees for new college graduates. Despite this, computer science education is marginalized throughout our K-12 education system – denying access to this critical knowledge, particularly among underrepresented groups. In fact, only 13 states and the District of Columbia allow rigorous and engaging computer science courses to satisfy a math or science requirement for graduation from high school.

## What can states do to improve K-12 computer science education?

### 1 Allow computer science classes to satisfy existing graduation requirements for math or science.

Current computer science courses often do not count towards a student’s required coursework – they are treated as electives. Given the academic demands, college-bound students cannot afford to take computer science as an elective. This policy would not require schools to offer computer science or students to study it; it simply allows existing computer science courses to satisfy a core requirement that already exists.

### 2 Establish computer science standards.

Most states do not have discrete computer science standards within their existing state standards. States should establish rigorous standards for computer science focused on the creation (not just the use) of software and other computing technologies. The Computer Science Teachers Association has model K-12 CS standards.

### 3 Establish or strengthen computer science teacher certification processes.

Most states do not have clear pathways for people to become computer science teachers. Those that have the desire, knowledge and skills to teach young people computer science should have a clear, navigable and rewarding path to K-12 classrooms.

