

### INSIDE THIS ISSUE

- 2 About Special Ed Tech
- 2 Free webinars on supporting computer science education
- 4 Including students with disabilities in computer science courses
- 5 Seven ways to encourage students to pursue computing using game design

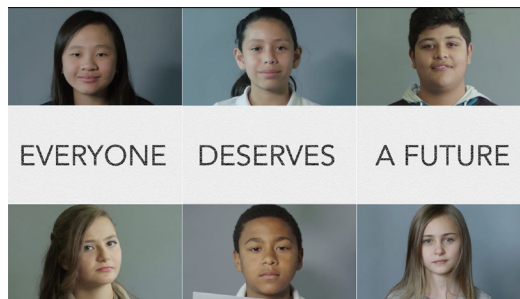
## Leveling Up

Earn CE certificates via many of these free and low-cost webinars, courses, and seminars. See [edWeb.net](http://edWeb.net), [Kent County ISDs PD Hub](http://KentCountyISDsPDHub.com), and [ADDitudemag.com](http://ADDitudemag.com) for additional instruction.

- **How to Increase Reading Rates with eBooks and Audiobooks**, Thurs., Dec. 1 at 4 p.m. EST on [edWeb.net](http://edWeb.net).

Cont. on [page 2](#)

## Resources for promoting equity in computer science at your school



It's no surprise that there is a lot of opportunity for employment in the computer science (CS) field. Last year there were more than 600,000 high-paying tech jobs across the United States that went unfilled. The White House estimates that by 2018, 51 percent of all STEM jobs will be in CS-related fields.

We need to make sure that all students have equitable access to computer science education, to ensure that everyone gets a chance to succeed and that new software serves diverse needs. See this excellent [video about equity in computer science](#).

In his final State of the Union address in January 2016, President Obama said, "We have to make sure all kids are equipped for the jobs of the future -- which means not just being able to work with computers, but developing

Please see [CS resources on page 3](#)

## Celebrate CS Ed Week! Dec 5-11, 2016


### Computer Science Education Week

It's that time of year again -- Computer Science Education Week! Every year in December, computer science stakeholders encourage teachers and students to discover the wonderful world of coding.

This year offers more than ever. Check out the activities and suggestions on [csedweek.org/](http://csedweek.org/), including how to host an Hour of Code, inspire students, promote CS in your school, and more. You should especially check out [how to host a CS](#)

[Tech Jam](#) for some great additional resources and activities. 

*Leveling Up*, continued from [page 1](#)

- **Beyond the Hour of Code: Implementation for All**, Tues., Dec. 6 at 8 p.m. on [edWeb.net](#).
- **Neuropsychological Evaluation and Intervention Strategies for Children with Autism Spectrum Disorder (ASD)**, Thurs., Dec. 8 at 11 a.m. EST on [edWeb.net](#).
- **Math Mindset Comes First: Closing the Achievement Gap**, Thurs., Dec. 8, at 3 p.m. EST on [edWeb.net](#).
- **Now I Have to Teach Coding? A Beginner's Guide**, Thurs., Dec. 8 at 4 p.m. EST on [edWeb.net](#).
- **Beyond Consequences: A New Look at Fairness and How to Reduce the Use of Discipline Techniques in the Classroom**, Mon., Dec. 12 at 3 p.m. EST on [edWeb.net](#).
- **The WEP Story: Girls in India Succeeding in College, Career and Life**, Tues., Dec. 13 at 3 p.m. EST on [edWeb.net](#).
- **Building Bridges from Concrete to Abstract Part 4: Multiplication & Division of Fractions & Decimals**, Tues., Dec. 13 at 4 p.m. EST on [edWeb.net](#).
- **An Educator's Guide to Teaching Students with ADHD**, Wed., Dec. 14 at 1 p.m. EST on [additudemag.com](#).
- **Connecting Students to Holiday Celebrations Around the World**, Wed., Dec. 14 at 4 p.m. EST on [edWeb.net](#). 

## About Special Ed Tech / Subscriptions

*Special Ed Tech*, [specialedtech.net](#), is published monthly from September through May by the director of Aspiring Games Foundation, [aspiringgames.org](#).

To subscribe, go to [specialedtech.net](#), scroll to the subscription box on the bottom of the page, insert your e-mail address, and click the "Subscribe" button.

We welcome your questions and article suggestions. Direct all queries and subscription issues to editor Becky Palmer-Scott at [SpecialEdTechEditor@gmail.com](mailto:SpecialEdTechEditor@gmail.com).

## Free webinars on supporting computer science education

[edWeb.net](#) is offering two free webinars in December to support computer science education.

The first, entitled "[Beyond the Hour of Code: Implementation for All](#)," will be held 8 p.m. EST Tuesday, Dec. 6, and discusses how to integrate coding into daily instruction. It includes:

- Creating a maker culture in your schools and beyond
- Using computer science for inquiry-based learning and integrating computer science with all subject areas
- What district administration can do to empower teachers to bring computer science into the school day
- How to create coding/robotics electives and after-school clubs
- Where teachers can find curriculum to use year-round

A second webinar, entitled "[Now I Have to Teach Coding? A Beginner's Guide](#)," will be 4 p.m. EST Thursday, Dec. 8. Attendees will learn how to teach curriculum computational and design thinking, and how to connect to the language of code to solve problems and create content.

Presenters will share accessible tools, a problem-solving approach, and strategies to inspire and challenge students (and yourself) to approach problems as coders would.

Click on each title for details and to register. 


**CS resources**, continued from [page 1](#)

the analytical and coding skills to power our innovation economy. In the new economy, computer science isn't an optional skill -- it's a basic skill, right along with the three 'Rs.'

Since President Obama's call to action in January 2016, strong momentum for CS education has grown in government and the private sector. This includes:

- More than [\\$25 million in new grants](#) awarded from the National Science Foundation to support CS education
- A new CSforAll Consortium of more than 180 organizations. to connect stakeholders with curriculum and resources, as well as track progress toward the goal of Computer Science for All, and
- New commitments from more than 200 organizations, including the Girl Scouts, Code.org and Head Start, to reach more a more diverse student body, provide professional development for teachers, and host family coding nights in diverse settings.

So what can you do?

- **Introduce coding to your students today.** Go to [code.org/learn](http://code.org/learn) and/or [sign up to participate in Hour of Code](http://code.org/sign-up). Hour of Code and its sponsor [code.org](http://code.org) both offer free beginning coding lessons for students of all ages. The lessons and their accompanying videos have high production value, encourage diversity in programming, and draw on popular culture, such as Star Wars, Minecraft, and Disney's Frozen.
- **Find a local resource to help you.** Enter your location at [code.org/volunteer/local](http://code.org/volunteer/local) to see local volunteers who will talk to your students. In addition, [CSForAll.org](http://CSForAll.org) has compiled [a list of colleges](#) who have CS department chairs committed to supporting CS in your school.
- **Learn how to teach coding through professional development.** You can get free teacher guides, classroom materials, and training from [code.org](http://code.org), [code.org/educate](http://code.org/educate), [csedweek.org](http://csedweek.org), and [The Microsoft Educator Community](http://TheMicrosoftEducatorCommunity.org).
- **Encourage girls to code.** For ideas, check out [aspirations.org](http://aspirations.org), sponsored by NCWIT (National Center for Women in Information Technology).
- **For students with special needs/disabilities**, check out
  - [Tech Kids Unlimited](#), which offers free [online HTML lessons](#), PD workshops, and local support for people near New York City.
  - AccessCS10K at [uw.edu/accesscomputing/accessscs10k](http://uw.edu/accesscomputing/accessscs10k), which provides PD and tools for K-12 computing educators, and
  - AccessComputing at <https://doit-prod.s.uw.edu/accesscomputing/>, which connects high school and college students with mentors
- **Download a CS curriculum framework.** [k12cs.org](http://k12cs.org) has a free downloadable K-12 computer science framework, along with tips on how to get it implemented.
- **Look for grant opportunities.** Grants are available from the [Office of Innovation & Improvement](#), the [U.S. Department of Education](#), the [National Science Foundation](#), and the [Corporation for National & Community Service](#), as well as from CSForAll.org/members.
- **Keep connecting with other CS stakeholders.** Sign up at [CSForAll.org](http://CSForAll.org), then check out other CSForAll members at [CSForAll.org/members](http://CSForAll.org/members) to see other content providers, education associations, and funders. 

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*Here are some resources to introduce coding in your school.*

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## Including students with disabilities in computer science courses

by *Becky Palmer-Scott*  
 Editor, *SpecialEdTech.net*

Consider that despite 100+ years of car manufacturing, there still isn't a place to put a purse, because male car designers ignore this need even though about half the population carries one. Now apply this to software. If we want upcoming software programs to serve diverse needs, we need to teach computer science to diverse people, including students with disabilities. Opening this door will do much to help all our students succeed in life.

This is not only doable, it is being done. People who are blind, deaf, learning disabled, and mobility disabled have achieved successful careers in computer science, as shown in the [video "How Can We Include Students with Disabilities in Computing Courses?"](#) by [DO-IT \(Disabilities, Opportunities, Internetworking, and Technology\)](#) from the University of Washington.


Teachers can play an important role in encouraging students with disabilities by giving them access to computer science classes and also by applying universal design, so all students have equal access to the information. This means using multi-modal instruction, such as not only speaking the instruction to the class, but having the class discuss it in small groups, writing the instruction on an overhead projector, and showing videos.

Successful computer science professionals from the DO-IT video said the following helped them achieve success during school:

- Textbooks on tape
- Text in an electronic format which a screen reader could read aloud
- Note takers, who transcribed notes into Braille, when needed. This included creating embossed versions of diagrams
- Extended time on tests

Here are a few other tips from the video:

- Make sure that assistive technology is available in the computer lab, such as text-to-speech (TTS)/screen readers, dictation software, and Braille keyboard stickers or overlays. For product suggestions, see "[Simplifying reading and writing for students with disabilities](#)" and/or search for "[assistive technology](#)" on [SpecialEdTech.net](#).
- Make sure students with disabilities feel welcome. High school computer science teachers should let counselors know how open they are to including students with disabilities.
- Introduce the computer language [Quorum](#), which employs universal design and is especially usable by students who are visually disabled. Quorum has its own [hour of code here](#).

For more ideas, see [code.org/equity](#), [Equal Access: Inclusive Strategies for Teaching Students with Disabilities](#), [AccessCS10K](#), which is dedicated to including students with disabilities in computing education, and [AccessComputing](#), which connects high school and college students with mentors. 

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*People who are blind, deaf, learning disabled, and mobility disabled have achieved successful careers in computer science.*

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# Seven ways to encourage students to pursue computing using game design

by *Becky Palmer-Scott*  
 Editor, *SpecialEdTech.net*

Many students feel intimidated by the idea of learning computer programming, which is unfortunate considering all the high-paying computer science jobs out there. To help our students succeed, we need to break this mental barrier, and games are a great way to do it. This article lists seven ways to use games and game design to interest students in computer science, but there are many more resources. Check out [code.org](http://code.org), [code.org/learn](http://code.org/learn), and <https://csedweek.org/educate/cstechjam> for more great ideas.

## 1. “Computer and Programmer” game

This is an entertaining exercise which requires no computer, but which teaches the first rule of programming, which is that you must tell a computer every single thing you want it to do.

Have one student be the programmer and another student be the computer. Tell the ‘computer’ to step out of the room, then have the programmer hide an object somewhere in the room. Let the computer back into the room, then tell the programmer to direct the computer to the hidden object, using only the instructions of how many steps to take and which way to turn.

## 2. Gamestar Mechanic

[Gamestar Mechanic](http://gamestar-mechanic.com), which is geared toward 4th through 9th graders, does not teach computer programming, but it does teach how to create engaging online games, and is an entry-point to digital literacy, systems thinking, and online citizenship. It is browser-based, and is playable on any computer that can reach the Internet. It provides quite a few hours of instruction, and most students can go through the lessons without teacher help, so it works well for extracurricular activity or free time. It is free for individuals. but if you want to set up a class and monitor student progress, you can do so for \$2 per student. Gamestar Mechanic offers [teaching materials](#) which include an introduction to the pedagogy involved, how to navigate through the game, and how to use it in your class.



## 3. Scratch

[Scratch](http://scratch.mit.edu) is a well-known teaching tool usable by any student who can read, and it comes with terrific instructional materials. It introduces programming through blocks, similar to exercises on [code.org](http://code.org), and is a precursor to Javascript. Scratch is easy to learn and teach -- just follow the instructions in the curriculum guide. It is browser-based, so it is usable on any computer that can reach the Internet, and it's free. Click [here for a variety of downloadable guides and workbooks](#), or [here for a very excellent curriculum guide in PDF format](#).



## 4. MIT App Inventor 2

MIT App Inventor 2 teaches students how to build Android apps. It uses the

*Please see **Coding and games** on next page*

[Link to page 1](#)



### *Coding and games, continued from previous page*

same type of block programming as Scratch, but is a step up in terms of game sophistication and programming complexity. The tutorials can be followed by a programming novice, however.

With MIT App Inventor 2, students build their projects on a computer and then test them in real-time on their smartphones or tablets. To link the two devices, students will each need a Gmail account. If the student doesn't already have one, Gmail accounts are free and easy to set up by [going here](#) and clicking "Create account."

MIT App Inventor 2 is recommended for 6th graders and older. It takes a little extra effort to set up your class, but there is plenty of easy-to-follow documentation, and the lessons and games are well worth it. The program is free and browser-based, so you can use any kind of computer. To begin, go to <http://appinventor.mit.edu/explore/get-started.html>.



## 5. Kodu Game Lab

Kodu Game Lab, created by Microsoft, lets kids create games on the PC and Xbox using a simple visual programming language. It works on Windows computers, is free, and can be downloaded [from https://www.microsoft.com/en-us/download/details.aspx?id=10056](https://www.microsoft.com/en-us/download/details.aspx?id=10056). Select [KoduSetup.exe](#), click **Next**, and when prompted, permit the file to download. This may take a few minutes. When it is done, double-click KoduSetup.exe to install the file.

Kodu comes with helpful tutorials, which you can access after starting the program by selecting "Load World" from the splash screen menu. There is also a participant manual in PDF format which you can download [from here](#). Kodu works best with Xbox controllers, but a regular keyboard can be used.



## 6. Minecraft: Education Edition

Most people are aware of Minecraft, the extremely popular world-building game. As an educator, you can get [Minecraft: Education Edition](#) in your classroom for free as long as you have a valid school e-mail address. There is a lot of support for Minecraft in the form of a [starter kit](#), [training](#), and [community](#). There are also [ready-made lessons](#) on a variety of topics, which you can find using the provided lesson filter. To date there are two lessons on computer science (Comp Sci), "Minecraft Boolean Logic" and "Introduction to Logic Gates."

## 7. Unity - Game Engine

If you have students who are ready for higher-level programming instruction, you should introduce them to [Unity](#). Unity is a game engine that many game development professionals use to create video games. Becoming adept at this program would be a real door-opener for an aspiring video game creator.

Unity is [free to download](#) for individuals, and there are plenty of free tutorials and instructions to help users get started. There are tutorials at <https://unity3d.com/learn>, and a Unity manual is at <https://docs.unity3d.com/Manual/index.html>. An Internet search would reveal many other Unity videos, lessons, and documentation as well. ↗

