



CodeHS

Teach the Future

Read, Write, Code





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# Why Teach Coding at Your School

## CODE IS THE LANGUAGE OF THE FUTURE

Every app, every web page, every new piece of technology we use relies on programmers to help create it. The same way that we want all students to have an understanding of English, Math, History, and the Sciences, we should want our kids to develop digital literacy because, today, code forms the building blocks of our world!

## DEVELOP CRITICAL PROBLEM SOLVING SKILLS

Computer science teaches students important critical thinking skills that can be applied outside of the digital world. Computer programming involves learning to break down big problems into smaller parts, thinking of creative solutions, and communicating clearly.

## PREPARE STUDENTS FOR JOBS OF THE FUTURE

There are not enough programmers in the world to keep up with the number of brilliant ideas that people want coded. By the year 2020 there will be over 1,000,000 unfilled jobs in computing and related fields. Learning to code is an invaluable skill to have in today's tough job market.

## BE A LEADER: BRING CODING TO YOUR SCHOOL

By bringing computer science to your school, you will teach your students a foundational skill, provide them critical problem solving tools and prepare them to graduate high school ready to succeed in college and the working world beyond. Join CodeHS today to bring computer science to your school!

WANT TO LEARN MORE?

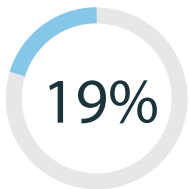
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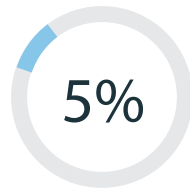


# CS Education Quick Facts

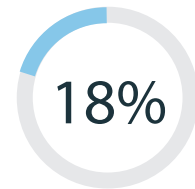
At the high school level, computer science is one of the most understudied, underrepresented academic subjects in the United States today. At the same time, the need for students to graduate high school with programming skills and a computer science way of thinking is at an all time high. Below are some facts and figures which highlight the need for America's high schools to adopt computer science curriculum on a large scale. These statistics drive CodeHS in our mission to introduce high schoolers to the incredible world of computer science.



American high schoolers who have taken a computer science course



U.S. High Schools that offer an AP Computer Science course

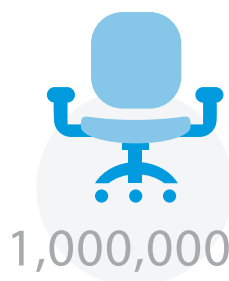


Computer science degrees that are earned by females

\*Down from 29% in 1990



Computer science is on average the highest paid college major upon graduation



Jobs in the computer science field that will go unfilled by 2020



US News put software developer at #1 on their 2014 100 Best Jobs list

As the technology industry continues to expand and evolve, students who graduate high school with a foundation in computer science will have a huge advantage over those that do not. CodeHS believes that all schools should provide their students with the chance to succeed by introducing them to the opportunity-filled world of computer science.



# What is CodeHS?

CodeHS is a web-based program to help you teach the best possible computer science classes. Whether you're new to teaching computer science or you've been teaching programming for decades, CodeHS is made for you. Lead Introductory through AP Level classes that will engage your students.

## Step-by-Step Curriculum



Teach year-long computer science courses using our ready-to-use web-based curriculum. Short videos, example code, and exercises make coding fun and accessible for beginners.



As a computer science TA at Stanford University, Jeremy taught thousands of students. He used his expertise to create the CodeHS curricula, designed specifically for younger students.

## Focus on problem solving



Teach the building blocks of programming by focusing on problem solving, not syntax. Apply skills taught through CodeHS to any programming language.

While learning the foundations of computer science, students also learn professional programming languages like JavaScript and Java

## Utilize Great Teacher Tools



Visualize individual student and class progress. Save time grading with efficient and easy-to-use grading tools that allow you to view and run student code, leave feedback, and grade programs, all through the web browser.

## Access Teacher Resources



Find all of the teacher resources that you need to lead a successful class: day-by-day syllabus, lesson plans, exercise handouts, problem guides, and more!

## Amazing Teacher Support



Get your questions answered by talented and enthusiastic CodeHS tutors. Join an online community of teachers using the CodeHS teacher question/answer forum.



Kurt works with teachers and tutors to create the best computer science learning experience for teachers and students.

## Read, Write, Code



Coding is becoming a foundational skill like reading and writing. Learning to code opens up countless opportunities for students. Start teaching today with CodeHS and empower your students!



Contact our team ( [team@codehs.com](mailto:team@codehs.com) ) to learn more or visit [codehs.com](https://codehs.com)



# Why CodeHS?

In the 21st century, coding is the new foundational skill. CodeHS will help your school equip students with the skills they need, not only for college- and career-readiness, but to become creators in our technological world. Over 13,000 teachers in public, charter, private, and home schools in over 42 states have used CodeHS to teach computer science. Join us!

## WHAT DO WE DO

CodeHS provides everything schools need to build a best-in-class computer science program: professional development, curriculum for introductory through advanced courses, and tools, resources and support for teachers. Join thousands of schools in over 42 states that use CodeHS to teach computer science!

## WHO ARE WE?

CodeHS was founded by two Stanford University computer science graduates - Jeremy Keeshin and Zach Galant - who taught the introductory computer science courses at Stanford for three years. With experience both learning and teaching CS at the best CS department in the world, the CodeHS team understands computer science and effective computer science pedagogy.



As a computer science TA at Stanford University, Jeremy taught thousands of students. He used his expertise to create the CodeHS curricula, designed specifically for younger students.



Kurt was originally a tutor on CodeHS. Now, as part of the CodeHS team, he helps create the best computer science learning experience for teachers and students.

## WHAT SETS US APART?

Understanding the specific needs of schools is our top priority. Having worked with thousands of schools across the country, we know what it takes for a computer science program to be successful.

### MAKE CODING FUN AND ACCESSIBLE

Students need content that is engaging, fun and accessible. Our self-paced curriculum makes CodeHS a successful learning tool for all types of learners. And with a focus on providing help when students get stuck, CodeHS encourages students to master programming concepts before moving on.

“My freshmen absolutely love computer programming. They rush in and get started way before the bell rings and keep going after the dismissal bell.”  
-- Bruce Supalla, Teacher at Helena Christian School



Contact us at [hello@codehs.com](mailto:hello@codehs.com) to bring computer science to your district today!

## FOCUS ON PROBLEM SOLVING AND CRITICAL THINKING

We teach the building blocks of programming by focusing on problem solving, not syntax. The skills that CodeHS teaches can be used for solving problems in any coding language.

“[My students] learned perseverance, precision, problem solving, cooperation and collaboration (you should have seen them analyzing and debugging each other's programs). These and many other "real world" skills, that they learned during their adventure in coding, will serve them well throughout their lives and in their chosen careers.”

-- Eve Sarra, New Computer Science Teacher, Bridgeport Central School

## TOOLS, RESOURCES & SUPPORT FOR TEACHERS

Teachers need tools, resources, and support that make teaching effective and efficient -- especially in a subject they might not have experiencing teaching. Whether teachers are new to teaching computer science, or have been teaching programming for decades, CodeHS helps save teachers time and focus on what is really important -- providing support for their students.

“I am very impressed with the summer course offering for new teachers and all the assistance and guidance your curriculum comes with. For a new teacher of coding it is super relieving to see that level of support.”

-- Justin Bourque, New Computer Science Teacher, Concord High School

“Thanks again for your excellent work in building CodeHS into the best online resource for teaching programmatic thinking and CS problem solving at the high school level. There is no resource that comes remotely close to what CodeHS provides.”

-- Eric Ferrante, Experienced Computer Science Teacher at Cupertino High School

## SMART TOOLS FOR VISUALIZING STUDENT DATA

Districts need learning solutions that are effective at the student and teacher level, and can be implemented effectively at the district level. CodeHS provides customized dashboards and reports that allow district admins to view class progress at the macro level, and drill down on individual student performance.

“CodeHS is a silver bullet for district administrators!”

-- Aaron Grill, Director of Technology at The Browning School

## GET STARTED TODAY!

### PRICING AND MEMBERSHIP OPTIONS

CodeHS offers different membership options to fit your district's needs. Learn more at [codehs.com/plans](https://codehs.com/plans).

Questions about school or district-wide membership? Shoot us an email at [hello@codehs.com](mailto:hello@codehs.com)



Contact us at [hello@codehs.com](mailto:hello@codehs.com) to bring computer science to your district today!



# CodeHS

## For New Computer Science Teachers

Teaching a computer science course for the first time can be difficult. Developing a curriculum takes time and expertise, and the resources required to teach a computer science course aren't like any other class. It can also be scary to teach a new subject for the first time.

## EVERYTHING YOU NEED TO TEACH COMPUTER SCIENCE

CodeHS' easy-to-use platform provides everything new teachers need to start a fun and engaging programming course. With amazing teacher support and tools, CodeHS is made for passionate teachers who want to start teaching computer science—even if you don't have a background in programming.

“Students were excited to come to class everyday & would start working on their programs before the bell would ring!”

Kristen Fisher  
Teacher at Township High School

**Online Professional Development:** learn the basics of programming and effective pedagogy for your blended classroom with personalized help and feedback from our PD team.

**Step-by-Step Curriculum:** Short videos, example code, and tons of programming exercises make coding fun and accessible for students of all backgrounds and experience levels. Our self-paced curriculum allows students to master every programming concept.

**Extensive Teacher Resources:** Utilize ready-made lesson plans, exercise handouts, problem guides, and more to help lead your class. Find the resources you need to make your class a success, all on the CodeHS website.

**Amazing Teacher Support:** CodeHS tutors help you dive into the world of programming, even if you don't have a background in computer science! Receive personalized help and feedback as you work through the CodeHS curriculum. Questions about setting up your class? Our Teacher Community Team is here to help you at every step along the way.

“The best support ever! I am telling all my friends who teach at area high schools to use CodeHS for their programming courses!”

Anne Marie Bette  
Teacher at New Egypt High School



Contact us at [hello@codehs.com](mailto:hello@codehs.com) to start teaching with CodeHS today!



# CodeHS

## For Experienced Computer Science Teachers

CodeHS makes teaching computer science a lot more fun and efficient. Keep students engaged, easily manage classwork, save time grading, and create your own course content all in a web-based environment.

### Easy-to-use Platform



CodeHS is accessible entirely online with no downloads necessary. Students see their code come to life in the web-based coding environment starting on day one. The self-paced curriculum ensures that every student masters every programming concept.

### Access Extensive Content



Follow a ready-to-use curriculum for Intro through AP level computer science courses. Short videos, example code, and lots of programming exercises make coding fun and accessible -- whether students are new to computer science or prepping for an AP CS exam.

### Save Time Grading



View, run, and grade student submissions quickly and easily. Access sample solutions, leave feedback for students, and give grades using an easy color coded grade system.

### Track Student Progress



Easily visualize student and class progress. Individual and class progress reports help you identify who in your class is ahead, on track, or needing a little extra 1-on-1 support.

### Customize Your Course



Have creative project ideas for your students? Create your own exercises and projects to assign to your students! Want to take things to the next level? You can create your own videos and custom autograders, the sky's the limit!

### What CS Teachers Are Saying



"Thanks again for your excellent work in building CodeHS into the best online resource for teaching programmatic thinking and CS problem solving at the high school level. There is no resource that comes remotely close to what CodeHS provides."

Eric Ferrante  
Experienced Computer Science Teacher  
Cupertino High School



Contact our team ([hello@codehs.com](mailto:hello@codehs.com)) to learn more or visit [codehs.com](https://codehs.com)



# CodeHS Testimonials

## WHO WE WORK WITH

Thousands of teachers and tens of thousands of students use CodeHS to teach and learn computer science. We work with schools in over 40 out of 50 states nationally and over a dozen countries internationally. See what educators and 21st century learners have to say about CodeHS!

## WHAT TEACHERS SAY ABOUT CODEHS



"For district administrators, CodeHS is a silver bullet!"

Aaron Grill, veteran Computer Science Teacher and Department Head at  
The Browning School, New York, NY

"So many students completely fell in love with programming. I think 100% of the students want to take another quarter of the class"

Pam Rissman, Computer Science Teacher at  
Dartmouth Middle School, San Jose, CA



"We would not be able to do this unless it was with CodeHS...Seven kids are now taking AP Computer Science who did not even dream of taking it before."

Adam Schmierer, AP Physics Teacher and New Computer Science  
Teacher at Union & Heritage High School, Vancouver, WA





"You guys have the magic! CodeHS is not too elementary and it's not too crazy complex, either"

Joe Thompson, new Computer Science teacher at Gunston High School, Centreville, MD

"Using CodeHS has been so helpful since I am new to teaching. It's a wonderful site and the kids love the class!"

Paige Daniels, new Computer Science Teacher at High Point Christian Academy, High Point, NC



## WHAT STUDENTS SAY ABOUT CODEHS

"CodeHS is one of the best, no, scrap that. It IS the BEST of the computer programming websites on the internet. I would sincerely tell this to a friend to learn coding. You never know when it could come in handy." -- Michelle, CodeHS Student

"I went home after our first class and kept on coding. I didn't do any other homework. I didn't eat. I didn't sleep. And I finished Karel in a day or two!" -- Tyler, CodeHS Student

"Really amazingly rich content, extremely well-presented" -- Noah, CodeHS Student

"This is an amazing website to help get started to code." -- Edward, CodeHS Student

[READ CODEHS CASE STUDIES](#)

Visit [blog.codehs.com](http://blog.codehs.com)

[CodeHS.com](http://CodeHS.com)



# CodeHS Case Study

## Coding -- The Funnest Class at Gunston High School

When Tyler Judd first signed up to take a computer class, he didn't know what to expect. He assumed the students would mess around with various apps, which seemed appropriate given that computers and technology are an crucial part of their every day lives. He'd certainly never coded before. So when Tyler found out that coding was going to be a large component of the class, he was pretty skeptical.

As soon as he started, though, he says proudly, "it hit me and I was stuck! I went home after our first class and kept on coding. I didn't do any other homework. I didn't eat. I didn't sleep. And I finished Karel in a day or two!"

I went home after our first class and kept on coding. I didn't do any other homework. I didn't eat. I didn't sleep. And I finished Karel in a day or two!"

You may think Tyler is the exception, that he just has a knack for coding. And you'd be right (at least about the second part)! Hearing Tyler talk about how learning to code has inspired him is incredible. But it's not just Tyler — the other kids in his class also love the new course they are taking. Many say they never really wanted to code before, but when asked about what they think now, the response is overwhelmingly positive: "it's awesome!" "it's really fun!"

Tyler explains why he thinks coding is so compelling to him and the other students in his class — "When you're on your computer, it's empowering to know how to tell it what to do! And... it makes you seem like a badass." Tyler is on to something.

In this day and age, when technology is such an undeniable part of every student's life, giving students the ability to create things with technology is like giving them a superpower. It's cool and exciting. And the students realize it!



Giving students the ability to create things with technology is like giving them a superpower.

So how did these students get the chance to learn this modern day superpower? Joe Thompson.

Joe Thompson is the teacher in high school that you wish taught every one of your classes. He leads the one period a day that, as a student, you really look forward to. In his class, you know you're going to learn a lot, and it's also going to be fun, and you can be unabashedly yourself.

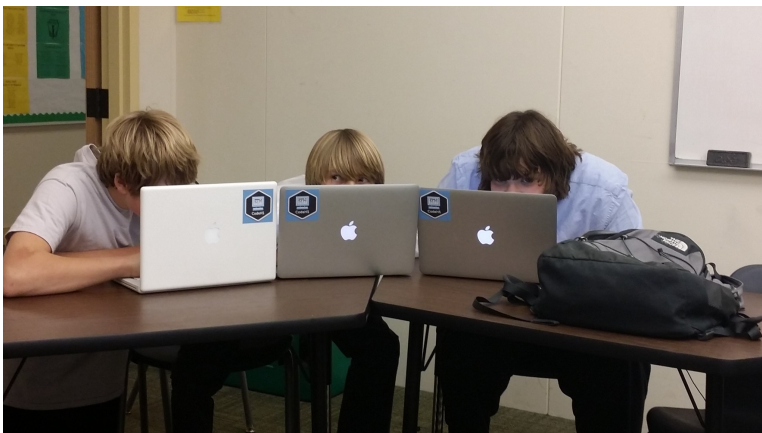
Joe hadn't been in the classroom for a while. He used to coach and teach IT at a much bigger school. When he moved to Gunston High School, where he now teaches, he wore a bunch of different hats. One such hat, is the computer teacher. He was assigned to teach the course, which involved making sure students were comfortable using computers.

After the Hour of Code had attracted millions of students across the country to try out some programming, he thought it would be a valuable opportunity to incorporate more coding into his class as well.

“Every endeavor relates to code. Everything that human beings are doing—agriculture, coaching sports, cars.. it's an important skill for students to have!”

The way Mr. Thompson sees it, the world is built on code: “every endeavor relates to code. Everything that human beings are doing—agriculture, coaching sports, cars.. it's an important skill for students to have!” he says. So, even though he didn't have a background in programming, he decided to take on the task himself and offer coding as an academic subject at Gunston.

Joe teaches an eclectic and exciting class. One of his students said that what he really likes about the class is that there isn't just one thing that the students are doing all the time. “When I was in Mr. Thompson's class, one day you're learning how to build a website with HTML and the next you're doing coding problems on CodeHS”.



Mr. Gunston incorporates different types of coding into his class to keep it fun, interesting, and applied. He sees CodeHS as the best way to lay the foundations for the computational thinking and problem solving that the students are going to use no matter what sort of coding they do.

For example, Mr. Thompson brought in an Arduino and saw the coding skills from CodeHS transfer seamlessly to coding these robots. “You guys have

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[CodeHS.com](http://CodeHS.com)

the magic!" he says about CodeHS, "it's not too elementary and it's not too crazy complex, either".

Even more exciting than Joe's assertion that CodeHS is teaching computer science right, is his students' enthusiasm. The students shout a resounding "yes!" when asked if they're interested in taking more coding classes. Tyler says "coding is intimidating at first. When you say coding, you think to yourself it's going to be boring. That you're going to be sitting in front of a computer just banging keys all day. It's not that at all! You have to get in there with the right mindset and you're going to love it!"

Another student proffers, "Be a self-starter! You don't need a teacher!" while another says, "if nothing else, just try the darn thing! You won't not like it." If that doesn't have you convinced, I don't know what will.

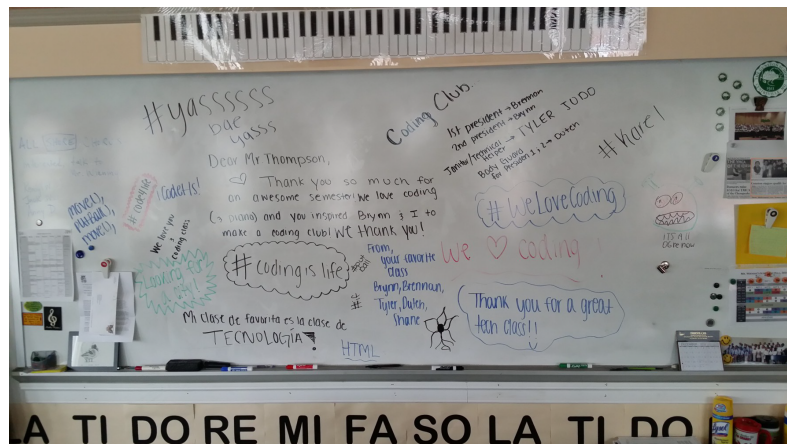
As Joe thinks about the future of coding at Gunston High School, he says he wants to have a required quarter-long freshman class to expose students to coding. "It's very important that everybody gets exposure. Even someone who has no idea, almost no interest ought to do a couple of lessons of Karel just so that they know what's going on behind the scenes when they're running a computer."

## The students shout a resounding "yes!" when asked if they're interested in taking more coding classes.

He also wants to offer a couple more advanced coding classes for students who are interested in pursuing the subject. After that, he imagines a project-based class would be fun. Ultimately, the sky is the limit for the people that get really into it.

We agree, and we can't wait to see what Tyler Judd and his classmates are up to a few years from now.

Interested in bringing coding to your school? Shoot us an email at [schools@codehs.com](mailto:schools@codehs.com) — we'd love to help make it happen!



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[CodeHS.com](http://CodeHS.com)



# CodeHS Case Study

## Aaron Grill, Experienced Computer Science Educator, on Why CodeHS Was His Silver Bullet

More and more of Aaron Grill's students want to take a programming class. And he believes that interest is only going to grow. "Kids are intrinsically more interested in computer science — it's the culture of today... it affects everyone's life every day. They all have phones and laptops, they all understand that there is another language they need to speak in order to communicate or produce something that is meaningful."

Aaron Grill is an experienced computer science educator. There are two things that drew him to CodeHS. First, it saves him a ton of time. Second, it's scalable.

### AARON GRILL SAVES TIME WITH CODEHS.



Mr. Grill is a busy teacher with a lot on his plate. Teachers tend to be that way. With dozens of students across various classes, staying on top of student work and leveraging time both in and out of the classroom is extremely important. Aaron likes to use tools that help him spend his time efficiently and effectively.

Aaron studied computer science in college but always wanted to go into education. (There are not enough people like him!) About twelve years ago, he started teaching elementary and middle school students the basics of computers using tools like Scratch to program video games. He then helped build out a K-6 technology curriculum and eventually started teaching in the middle and high school as well.

As students started making video games in his classes, they wanted to learn more about what was going on behind the screen. They wanted to learn more about programming. So in 2008 when Aaron became

Director of Technology, he decided to expand the tech program — and that included teaching more computer science.

Aaron began teaching Java, using the programming methodology produced by Stanford. He experimented with the flipped classroom model for the AP course. The students watched video lectures at home and did hands-on exercises and projects during class time.

While teaching those computer science classes, he noticed a few things. First off, Aaron always found himself getting bogged down in grading. Each time a student submitted a program, she would have to export the code into a zip



file, send the file via email to Mr. Grill who would then import the program and run it on an integrated development environment like Eclipse, which would have to already be downloaded and installed on his own computer. After running and grading the student program, he'd have to do the same process to get it back to the student. Now multiply that by a bunch of programs with a bunch of students across a bunch of classes. It took a lot of time.

So Mr. Grill was in the businesses of looking for better tools to use in his computer science classes. Blended-learning programming websites began to pop up, which meant that all of the code that previously lived on each student's computer and within downloaded software, suddenly could be run through the web-browser and accessed from any computer. Instead of exporting and importing those files and requiring a software download to run programs, all you'd need is a modern web browser to run code. That was a huge first step.

However, things really clicked when he came across CodeHS. With both the online coding environment for the students and the teacher-facing tools to help manage his classes, run student programs and grade student work, Aaron Grill found exactly what he was looking for to help him teach classes—and more.



“Even as an experienced computer science person, these resources are incredibly helpful!”

Dealing with the student workflow became much easier with tools that allowed him to visualize student progress, run student code, grade student work, and leave helpful comments and feedback to students. Logistical things that used to eat up all of his time were stripped away.

In addition to the tools that made grading easier, Aaron has access to an extensive library of resources including programming exercises, problem guides, lesson plans, and exercise handouts, which he uses to prepare for class and assist his teaching.

Aaron says that “even as an experienced computer science person, these resources are incredibly helpful!” Having class materials not only cuts down on the time he would otherwise have to spend creating the resources himself, it allows him to spend more effective one-on-one time with students and he feels confident and supported going into each lesson.

Teachers shouldn't have to reinvent the wheel. They should be able to help students learn.

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[CodeHS.com](https://codehs.com)

## CODEHS IS REPLICABLE AND SCALABLE.

As a teacher and now department chair who knows that interest in computer science will only grow, Aaron looks for scalable solutions for teaching computer science. Meanwhile, one of the unfortunate realities that Aaron faces is teacher turnover. How can schools effectively build out computer science programs when there aren't enough teachers who have a background in computer science and teacher turnover is high?

Aaron Grill says that “for district administrators, CodeHS is a silver bullet!” He feels less limited by finding a teacher with an extensive computer science background, because he believes a math teacher can work through CodeHS and feel confident going in to teach computer science the following year.

The structure that CodeHS provides helps the computer science program that Aaron is building maintain consistency even if new and different teachers are teaching the courses. It also means that the program is scalable to more teachers.

“CodeHS is broken down really sensibly for the specific high school age group!”

Of course, it's not only about what makes Mr. Grill's life easier — it's also important to engage the students. After trying countless textbooks, Aaron saw that students were unable to absorb information when it was presented in vexingly long paragraphs of text. According to Aaron, even other sites that tried to teach coding haven't achieved the effective pedagogical breakdown of concepts that he says CodeHS has. “CodeHS is broken down really sensibly for the specific high school age group!”

As all computer science teachers will tell you, Aaron's students do get stuck and they do get frustrated. It's the nature of learning to code. However, CodeHS has been far more successful in helping students complete small tasks and overcome conceptual hurdles. Aaron describes this process as finding “success through failure”.

After taking the Introductory Computer Science course using CodeHS, Aaron Grill has watched his students develop an understanding of the basics of programming, which translates into an ability for those students to look at another piece of technology, like the Oculus Rift, and have a basic idea of how it could work. Variables, methods, data structures — they get it!

At the end of the day, when you see that spark of understanding take hold and the student becomes more interested in continuing computer science, that's incredibly inspiring.

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Other questions? email us at [hello@codehs.com](mailto:hello@codehs.com)

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# CodeHS

## 4 Year Computer Science Pathway



	Year 1	Year 2	Year 3	Year 4
Track 1	Intro CS 1	Intro CS 2	Web Dev	AP Java
Track 2	Intro CS 1	Intro CS 2	AP Java	Web Dev
Track 3	Intro CS 1	Intro CS 2	AP CS Principles	AP Java
Track 4	Intro CS 1	Intro CS 2	AP CS Principles	Web Dev
Track 5	Intro CS 1	AP CS Principles	Web Dev	AP Java

### INTRODUCTION TO COMPUTER SCIENCE 1

This course is an introduction to computer science for students with no prior experience. Students learn to program in JavaScript, a professional language used across the web, while starting off in a fun, friendly and accessible environment.

### INTRODUCTION TO COMPUTER SCIENCE 2

This course builds upon CS1 and dives into more advanced topics like strings, object-oriented programming, and recursion. Students will solve challenging programming problems and develop real world applications of programming in JavaScript, HTML/CSS, and Python.

### WEB DEVELOPMENT

This course is an introduction to web development. Students will learn how to use JavaScript in the web, HTML and CSS to create web pages, and a web framework to make an application dynamic. Students will save data to a database and at the end of the course build their own web application and put it on the internet.

### AP COMPUTER SCIENCE PRINCIPLES

In the 2016-2017 school year AP Computer Science Principles will be offered for the first time by College Board. CodeHS will develop a course to teach AP Computer Science Principles in high schools. This course will explore computational thinking more broadly, as well as a survey of computing concepts. Students will explore creative uses of computing, ideas around abstraction, the internet and its effects, and data.

### AP COMPUTER SCIENCE IN JAVA

AP Computer Science A is equivalent to a one-semester, college-level course in computer science. Students use the Java programming language to learn about topics such as problem solving, design strategies, organization of data, algorithms, and analysis of programs. The course also covers the ethical and social implications of computing. Students who complete this course will be prepared to take the AP Computer Science A exam.





# CodeHS

## Computer Science Courses

CodeHS offers computer science courses ranging from introductory to advanced levels for both students and teachers. Courses are made up of learning modules that include video tutorials, quizzes, example code, applied programming exercises, and programming challenges. All courses are designed to be engaging, fun, and rigorous.

This document describes courses that CodeHS currently offers. Schools interested in offering a 4-year computer science pathway can find information about future courses at [codehs.com/4year](https://codehs.com/4year).



### INTRODUCTION TO COMPUTER SCIENCE

CodeHS' Introduction to Computer Science course teaches the foundations of computer science and basic programming, designed for students with no prior experience coding. Students learn to program in JavaScript, a professional level language used across the web, while starting off in a fun, friendly and accessible environment.



### AP COMPUTER SCIENCE IN JAVA

The CodeHS AP Java course is a year-long course designed to help students master the basics of Java and equip them to successfully pass the College Board AP Computer Science A Exam at the end of the school year. Students use the Java programming language to learn about topics such as problem solving, design strategies, organization of data, algorithms, and analysis of programs.



### TEACHING INTRO COMPUTER SCIENCE -- PROFESSIONAL DEVELOPMENT

Fully prepare to lead an introductory computer science class with CodeHS -- no programming experience required. The course takes approximately 30 hours and can be completed on your own time, during school professional development days, over summer, or on school holidays. Our Online PD Course covers the basics of programming, debugging, strategies for teaching a blended coding course and more. Take the course and join a vibrant community of new and veteran CS teachers!

Want to learn more about our courses?

Visit [codehs.com/library](https://codehs.com/library) or contact us at [hello@codehs.com](mailto:hello@codehs.com) today to get started.



# CodeHS

## Introduction to Computer Science Syllabus

CodeHS' Introduction to Computer Science course teaches the foundations of computer science and basic programming. It is designed for students with no prior experience coding. Students learn to program in JavaScript, a professional level language used across the web, while starting off in a fun, friendly and accessible environment.

### COURSE BREAKDOWN

#### Module 1: Programming with Karel

Teaches what it means to “program” and allows students to focus on solving problems using code

Topics Covered: Commands, functions, basic syntax, while/for loops, if/else statements, commenting and code style, using appropriate control structures.

#### Module 2: Basic JavaScript and Graphics

Introduces the basics of JavaScript

Topics Covered: Variables, user input, control structures, functions with parameters and return values, and basic graphics, how to send messages to objects.

#### Module 3: Animation and Games

Watch graphics come to life! Teaches how to make objects move around the screen and how to let the user interact with programs using the mouse and keyboard.

Topics Covered: User-drive programs, timers, mouse events, keyboard events, randomization, animation using graphics

#### Module 4: Basic Data Structures

Introduces the essential basic data structures required in any program.

Topics Covered: Lists, arrays, maps, objects, sets, and grids.

#### Module 5: Game Design Components

Walk through the creation of the classic Helicopter game one step at a time.

Topics Covered: Game elements, side to side movement, acceleration of graphic objects, gravity, platform movement, compound data



# CodeHS

## Intro to CS Course Features

### ACCESS TO YEAR-LONG COURSE CONTENT

Teachers and students access all available CodeHS modules and can write and run code in the browser. Modules include video tutorials, example code, programming exercises, and challenge exercises that introduce students to the basics of programming in Javascript.

### TEACHER TOOLS

Monitor class and individual student progress, easily and efficiently grade student work, design a customizable and dynamic class syllabus and more. Teachers find tools to save them time and focus one-on-one with their students.

### TEACHER RESOURCES

Access daily lesson plans, classroom exercise handouts, sample solutions and more. Teachers are provided all classroom resources for use day-to-day with their students.

### TEACHER SUPPORT

CodeHS tutors help with debugging and provide feedback to teachers working through CodeHS content. Our Teacher Community Team assists with implementation and best practices before and during the school year.

### AUTOGRADING

Autograding provides immediate feedback on the functionality and style of a program. This is available only on certain exercises.

### CUSTOM CONTENT CREATION AND MANAGEMENT

Teachers utilize CodeHS' custom content creation and management system to create their own videos, programming exercises, autograders and more. Teachers can fully customize CodeHS courses using this tool.



# CodeHS <> College Board Alignment

## AP Computer Science in Java

The CodeHS AP Java course is a year-long course designed to help students master the basics of Java and equip them to successfully pass the College Board AP Computer Science A Exam.

## COLLEGE BOARD CURRICULUM REQUIREMENTS

CR1: Teaches students to design and implement computer-based solutions to problems.

CR2: Teaches students to use and implement commonly used algorithms and data structures.

CR3: Teaches students to select appropriate algorithms and data structures to solve problems.

CR4: Teaches students to code fluently in an object-oriented paradigm using the programming language Java.

CR5: Teaches students to use standard Java library classes from the AP Java subset delineated in Appendix A of the AP Computer Science A Course Description.

CR6: Includes a structured-lab component composed of a minimum of 20 hours of hands-on lab experiences.

CR7: Teaches students to recognize the ethical and social implications of computer use.

## CODEHS COURSE BREAKDOWN

### Unit 1: Introduction to Programming with Karel

Curriculum Requirements Covered: CR1, CR3, CR4, CR5, CR6, CR7

Subtopics Covered: Commands, Methods, Loops, Conditionals, Classes, Top Down Design

### Unit 2: Java Basics

Curriculum Requirements Covered: CR1, CR5, CR6, CR7

Subtopics Covered: Binary, Ethics, Printing, Variables, Types, Arithmetic Expressions, Casting, I/O, Errors, Math, Loops, If/Else, Debugging, Nested Control Structures, Strings



Contact us at [hello@codehs.com](mailto:hello@codehs.com) to start teaching AP Java with CodeHS today!

### Unit 3: Methods

Curriculum Requirements Covered: CR1, CR5, CR6

Subtopics Covered: Methods, Parameters, Return Values

### Unit 4: Classes and Object Oriented Programming

Curriculum Requirements Covered: CR1, CR5, CR6

Subtopics Covered: What Are Classes? Using Classes, Writing Our Own Classes, Methods, Instance Variables, Constructors, Visibility, Static, This, Super, Designing Classes

### Unit 5: Files

Curriculum Requirements Covered: CR1, CR5, CR6

Subtopics Covered: Files Reading/Writing

### Unit 6: Arrays

Curriculum Requirements Covered: CR1, CR2, CR5, CR6

Subtopics Covered: Basic 1D Arrays, Using ArrayList Class, Basic 2D Arrays

### Unit 7: Searching and Sorting

Curriculum Requirements Covered: CR1, CR2, CR5, CR6

Subtopics Covered: Sequential, Binary, Selection, Insertion, Mergesort, Interfaces, Polymorphism, Basic Recursion

### Unit 8: AP Test Review and Final Project

Curriculum Requirements Covered: CR1, CR6

Subtopics Covered: Review for AP Test, Final Project



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# CodeHS

## AP CS in Java Course Features

### ACCESS TO YEAR-LONG COURSE CONTENT

Teachers and students access all available CodeHS modules and can write and run Java code in the browser. Modules include video tutorials, sample code, quizzes, unit tests, and programming exercises that introduce students to programming in Java.

### AP TEST PREP AND REVIEW MATERIALS

Students who complete the CodeHS AP Computer Science in Java course will be fully prepared to take and pass the College Board AP CS A exam. Throughout the course students take assessments in the form of mid-lesson quizzes, end of unit exams and summative AP test prep materials.

### TEACHER TOOLS AND RESOURCES

Monitor student progress, easily and efficiently grade student work, access daily lesson plans, sample solutions and more. Teachers find tools and resources to save them time and focus one-on-one with their students.

### TEACHER SUPPORT

CodeHS tutors help with debugging and provide feedback to teachers working through CodeHS content. Our Teacher Community Team assists with implementation and best practices before and during the school year.

### AUTOGRADING

All exercises are run through the CodeHS autograder, helping students debug their own programs before needing help from a teacher. All student progress is saved to the site, so progress through the curriculum is never lost.

### CUSTOM CONTENT CREATION AND MANAGEMENT

Teachers utilize CodeHS' custom content creation and management system to create their own videos, programming exercises, autograders and more. Teachers can fully customize CodeHS courses using this tool.



# CodeHS and the Common Core Standards

The CodeHS Introduction to Computer Science curriculum satisfies important Common Core Standards at the High School level. Below is a breakdown of the mathematical practices that the CodeHS Intro to CS curriculum covers and overview of the specific Common Core State Standards that CodeHS touches on.

## MATHEMATICAL PRACTICES

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

## NUMBER & QUANTITY OVERVIEW

### Quantities

- >> Reason quantitatively and use units to solve problems

## ALGEBRA OVERVIEW

### Seeing Structure in Expressions

- >> Interpret the structure of expressions
- >> Write expressions in equivalent forms to solve problems

### Reasoning with Equations and Inequalities

- >> Understand solving equations as a process of reasoning and explain the reasoning
- >> Solve equations and inequalities in one variable

### Arithmetic with Polynomials and Rational Functions

- >> Perform arithmetic operations on polynomials
- >> Rewrite rational functions

### Creating Equations

- >> Create equations that describe numbers or relationships

## FUNCTIONS OVERVIEW

### Interpreting Functions

- >> Understand the concept of a function and use function notation
- >> Interpret functions that arise in applications in terms of the context
- >> Analyze functions using different representations

### Trigonometric Functions

- >> Extend the domain of trigonometric functions using the unit circle
- >> Model periodic phenomena with trigonometric functions
- >> Apply trigonometric identities

### Building Functions

- >> Build a function that models a relationship between two quantities
- >> Build new functions from existing functions



Contact us at [hello@codehs.com](mailto:hello@codehs.com) to bring computer science to your district today!



# CodeHS

## Technical Requirements

It is incredibly easy to get set up with CodeHS because it is an entirely web-based platform. All you need to get started is a computer with a browser that is connected to the Internet. Teachers getting started on CodeHS can set up their account, create a class and add their students, all in under 5 minutes! No software is ever downloaded and CodeHS can be accessed from a variety of platforms.

## SPECIFIC REQUIREMENTS FOR USING CODEHS

- 1 computer per student during class (Mac, PC, Chromebook all work great!)
- Online connectivity at a minimum of 10MB/sec
- Modern browsers on computers (up-to-date Chrome, Firefox, or Safari)
- Access to headphones for each student in class
- The following domains to be whitelisted for access: <https://codehs.com> and [YouTubeEducation.com](https://www.youtube.com/education) OR the YouTube whitelist program

## OTHER INFORMATION

- There are no plugins or browser extensions needed and no specific settings need to be changed
- There are no other dependencies or helper applications that need to be installed
- The product works great with Chromebooks and everything can be accessed via Chrome
- There are no folder or user security permissions that need to be set
- Not designed to be compatible with tablets





# CodeHS

## Professional Development

Gain the skills, expertise, and confidence you need to lead an introductory computer science course. Take the CodeHS Online PD Course and teach the future!

### COURSE OVERVIEW

Fully prepare to lead an introductory computer science class with CodeHS -- no programming experience required. The course takes approximately 30 hours; you can complete it on own time, during school professional development days, or school holidays. Take the course and join a vibrant community of new and veteran CS teachers!

### MEET YOUR INSTRUCTORS



As co-founder of CodeHS and previous computer science TA at Stanford, Jeremy has helped to teach thousands of students how to program.



Kurt started tutoring with CodeHS in 2012. He works with teachers and tutors around the world to create the best computer science learning experience.

### FEATURES

#### Self-paced Content

Through modules that can be completed on your own time, learn about basic programming + good CS pedagogy. Topics include debugging methods, assessing student learning, modifying lessons to students' needs, and much, much more!

#### Ongoing Support

Receive personalized feedback and support from the CodeHS professional development team as you work through the PD course and throughout the year as you teach your class.

#### Extensive Teaching Materials

Utilize lesson plans, exercise handouts, problem guides, and other resources. Discuss best practices and pedagogy with our vibrant community of new and veteran CS teachers!

**PRICING** \$1,500/teacher

Questions about professional development with CodeHS?  
Visit [codehs.com/pd](https://codehs.com/pd) or shoot us an email at [hello@codehs.com](mailto:hello@codehs.com) today!



# CodeHS School Plans



To help you build the best computer science program at your school or in your district, CodeHS offers different membership plans to meet your needs. Learn more about plan features below and fill out a short form at [codehs.com/quote](https://codehs.com/quote) to set up a time to talk about what makes the most sense for your school or district!

Free

\$ 0

Start teaching  
programming today

Free includes:

These awesome features:

- Full Intro to Computer Science Course
- Track Student Progress
- Limited Teacher Resources

Pro

\$ 2,500

per section per year

Equip your students  
and teachers for  
success

Pro includes:

Everything in free, and:

- Priority Teacher Support
- Dedicated Account Manager
- Tutor Support for Teachers Working Through Course
- Premium Teacher Resources
- Create Limited Custom Problems
- Automatic Gradebook
- Individualized Quiz Reports
- Unlimited Sandbox Programs
- 40+ Hours of Supplemental Content

Super

\$ 3,500

per section per year

Level up your  
creative, project-  
classroom with  
based learning

Super includes:

Everything in Pro, and:

- Administrator Dashboard
- Welcome Hangout With Your Class and CodeHS
- Unlimited Custom Problems
- CodeHS Designed Custom Syllabus

Ultra

\$ 4,500

per section per year

Build a  
best-in-class  
computer science  
program

Ultra includes:

Everything in Super, and:

- Computer Science Pathway Development Support
- Access to Special Content
- Q&A Webinar With CodeHS Team for Teachers, Admins, Parents



Contact us at [hello@codehs.com](mailto:hello@codehs.com) to bring  
computer science to your district today!



# CodeHS

## CS Program Cost Comparisons

CodeHS provides a comprehensive, cost effective and time efficient solution for schools seeking to start computer science programs. Schools building programs with CodeHS are able to offer computer science courses at the fraction of the cost of developing the same programs in-house. With program and curriculum development taken care of, teachers and administrators can focus on what is really important -- educating their students!

## COSTS OF DEVELOPING A COMPUTER SCIENCE PROGRAM

- Recruiting, hiring and benefits for a new computer science teacher: \$70,000
- Summer spent developing year-long curriculum: \$20,000
- Software development and support: \$10,000
- Ongoing curriculum development costs (lesson planning etc): \$10,000
- **Total Cost: \$110,000+**
- **Time needed to implement program: 1-2+ years**

## COSTS OF USING CODEHS

- Year-long Intro to CS course for full teaching load (5 sections): \$12,500
- Professional Development: \$1,500/teacher
- **Total Cost: \$14,000**
- **Time needed to implement program: 0-3 months**

## OTHER BENEFITS OF USING CODEHS

- Eliminate time spent recruiting a new teacher and developing curriculum and software. Schools using CodeHS can get started teaching computer science immediately
- Hundreds of hours saved over the course of a school year in terms of curriculum development, teacher training, classroom management, grading and more
- End-to-end web-based solution, teachers find everything they need in one place without having to consult different resources
- Students get the same, high quality instruction in every classroom
- No software installation or maintenance needed
- Implementation support at the teacher and administrator level



# CodeHS

## Becoming a CodeHS School

CodeHS is the best way to bring computer science to your school. We help schools build comprehensive computer science programs by offering everything that your students, teachers, and administration needs to promote, teach, and learn computer science in your school community. Already offering some coding classes? CodeHS can help as you continue to expand the computer science pathway at your school.

### WE WILL

- Work with your administration to develop a computer science program and pathway that meets your goals to expand computer science education at your school
- Work with your computer science or other teachers to provide the tools, resources, and support needed to lead successful computer science classes
- Provide your students with engaging and rigorous computer science curricula that will help propel them to be college and career-ready in the 21st century

### YOU WILL

- Join a community of progressive, forward-thinking schools that are expanding computer science education nationwide
- Become a leader by joining the 10% of schools in the U.S. that are offering computer science classes
- Receive outstanding support from the CodeHS team as you establish and develop computer science courses and pathways at your school
- Work with CodeHS to provide feedback and input on our courses, tools and resources as we seek provide the best product for educators and students alike.
- Receive preview access to new CodeHS courses and teacher tools.