



Google CS First

Empowering all youth through free computer science clubs

Paul Hill, Extension Associate Professor, Utah State University

Brendan Chan, Program Manager, engEDU, Google

Google Proprietary

Why Computer Science?

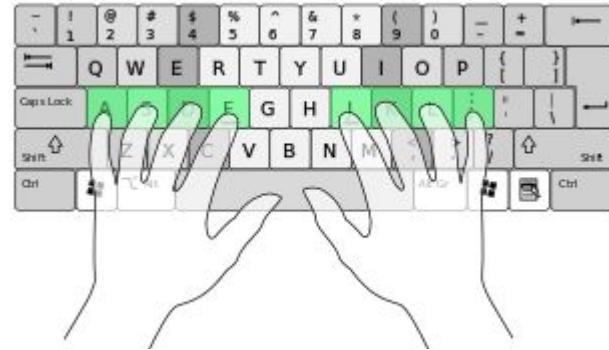


Computer science is the design and creation of computer programs via logical instructions.

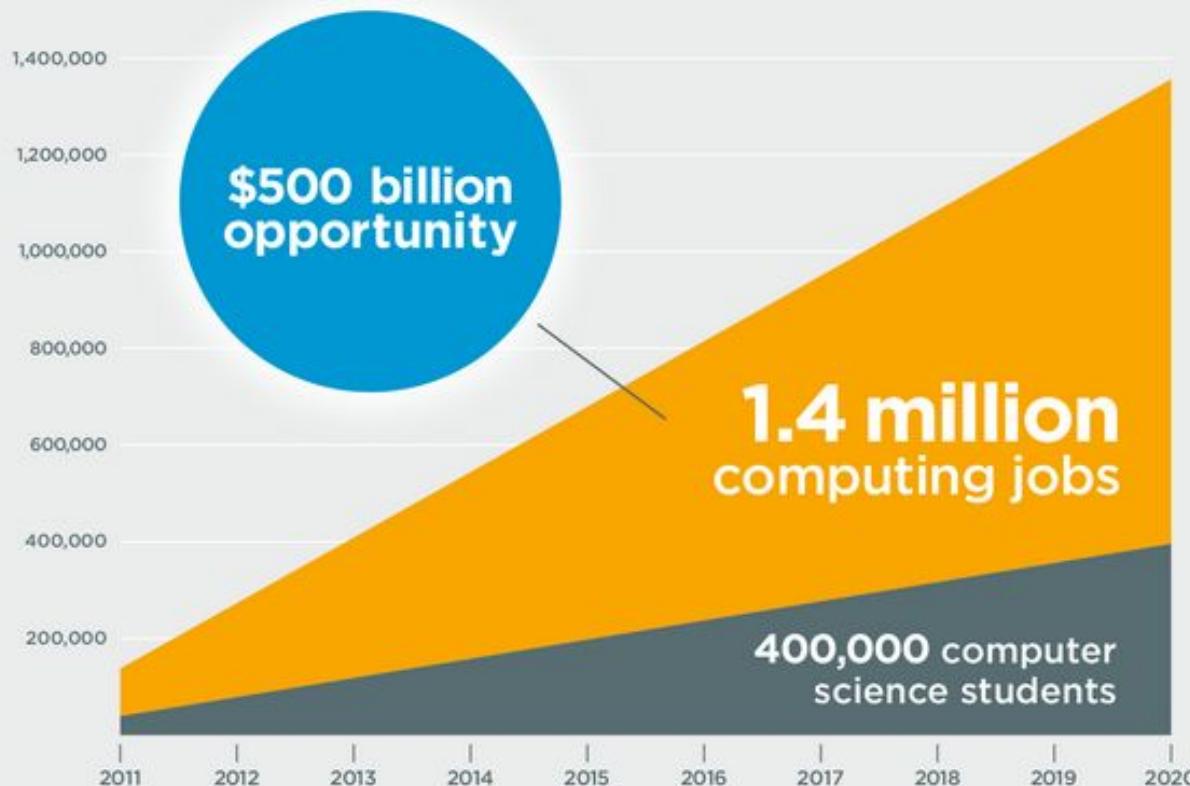
Computer science is “creating.”



Computer science is not “consuming.”



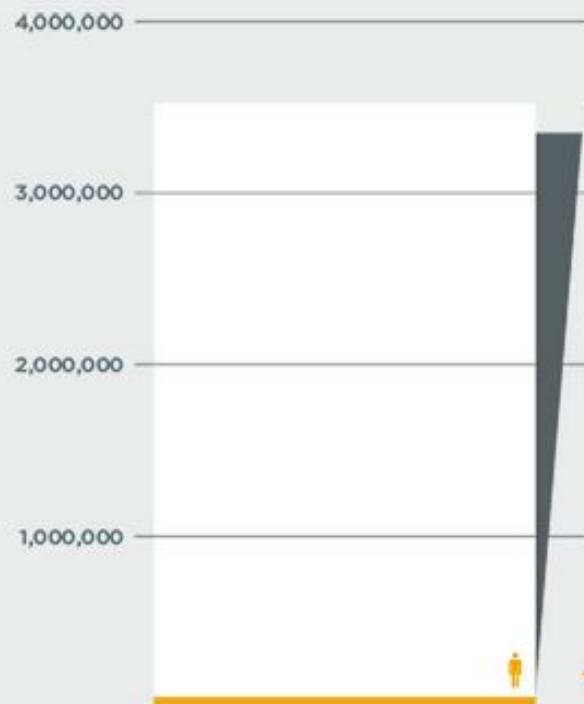
1,000,000 more jobs than students by 2020



Computer science
is a top paying
college degree
and computer
programming
jobs are growing
at 2X the
national average.

graph courtesy of code.org

2012 High School A.P. Courses



In 2012, **fewer than 3,000 African Americans and Hispanic students** took the high school A.P. computer science exam.

graph courtesy of code.org

CS has a diversity problem...

A look at our current employee demographics.

Overall

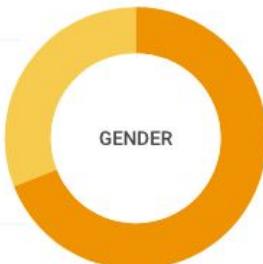
Tech

Non-Tech

Leadership

Women
31%

Men
69%



* Data from Jan 2017 – Gender data are global, ethnicity data are US only.

**See our EEO-1 report for more information. Ethnicity refers to the EEO-1 categories which we know are imperfect categorizations of race and ethnicity, but reflect the US government reporting requirements.

***Other includes American Indian/Alaskan Native and Native Hawaiian/Pacific Islander.

Source

Google Proprietary

Early Exposure

Familiarity with a subject can generate interest and curiosity while establishing a sense of competency.

Source: [Women Who Choose Computer Science](#)



Ultimately, the only way to get more people into Computer Science is to start early.

- Larry Page





CS First Key Objectives

Courage...
to try new things



Confidence...
when using computers



Perseverance...
to tackle difficult problems



Impact...
on communities
and careers

A Sense of
Belonging...
in tech for
underrepresented students



About CS First

Themed clubs attract students with varied interests.

Game Design



Art



Storytelling



Fashion & Design



Music & Sound



Friends



Social Media



Sports



Each theme contains **10 hours of content** across **8 sessions**.

Different themed clubs can run back-to-back throughout the year.

Club Participants

Host

The person who sets up the club and may or may not facilitate it

Volunteers/Gurus (optional)

People who can help lead the club other than the host

Club Member

Students



About CS First

Volunteers

Volunteers can be...

- Parents/Guardians
- High School students
- CS First alumni
- Role models from the community.
- People who work in industry mentoring.
- After-school practitioners, counselors and directors



Club Structure



Club Structure

Opening Discussion

5
mins

Showcase Projects

5
mins

Work Time

40
mins

Closing Discussion

10
mins



“Who can raise their hand and tell me what we did last time?”

Club Structure

Opening Discussion

5
mins

Showcase Projects

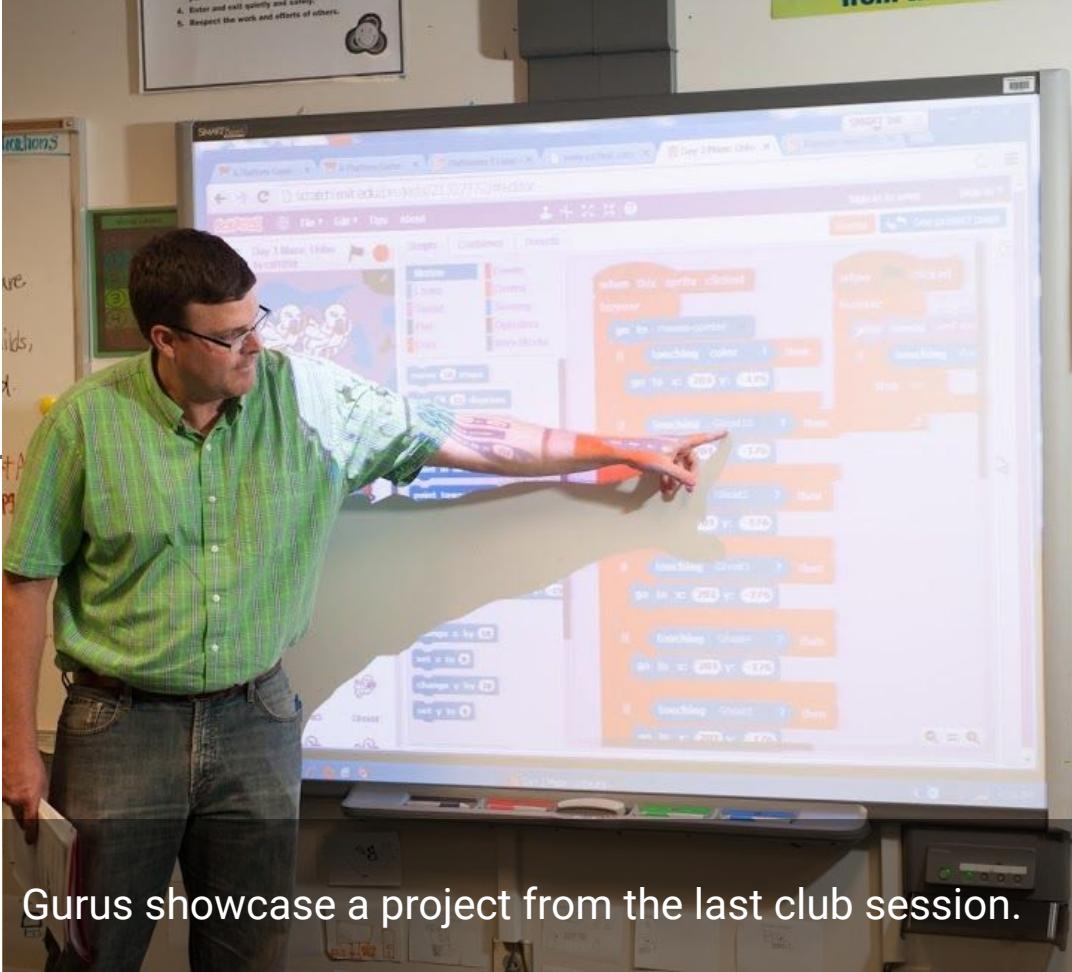
5
mins

Work Time

40
mins

Closing Discussion

10
mins



Gurus showcase a project from the last club session.

Club Structure

Opening Discussion

5
mins

Showcase Projects

5
mins

Work Time

40
mins

Closing Discussion

10
mins



Club members watch videos and build their project for the day.

[Sample video](#)

Club Structure

Opening Discussion

5
mins

Showcase Projects

5
mins

Work Time

40
mins

Closing Discussion

10
mins



Gurus answer questions and engage with individual students.

Club Structure

Opening Discussion



Showcase Projects



Work Time



Closing Discussion



Club Structure

Opening Discussion

5
mins

Showcase Projects

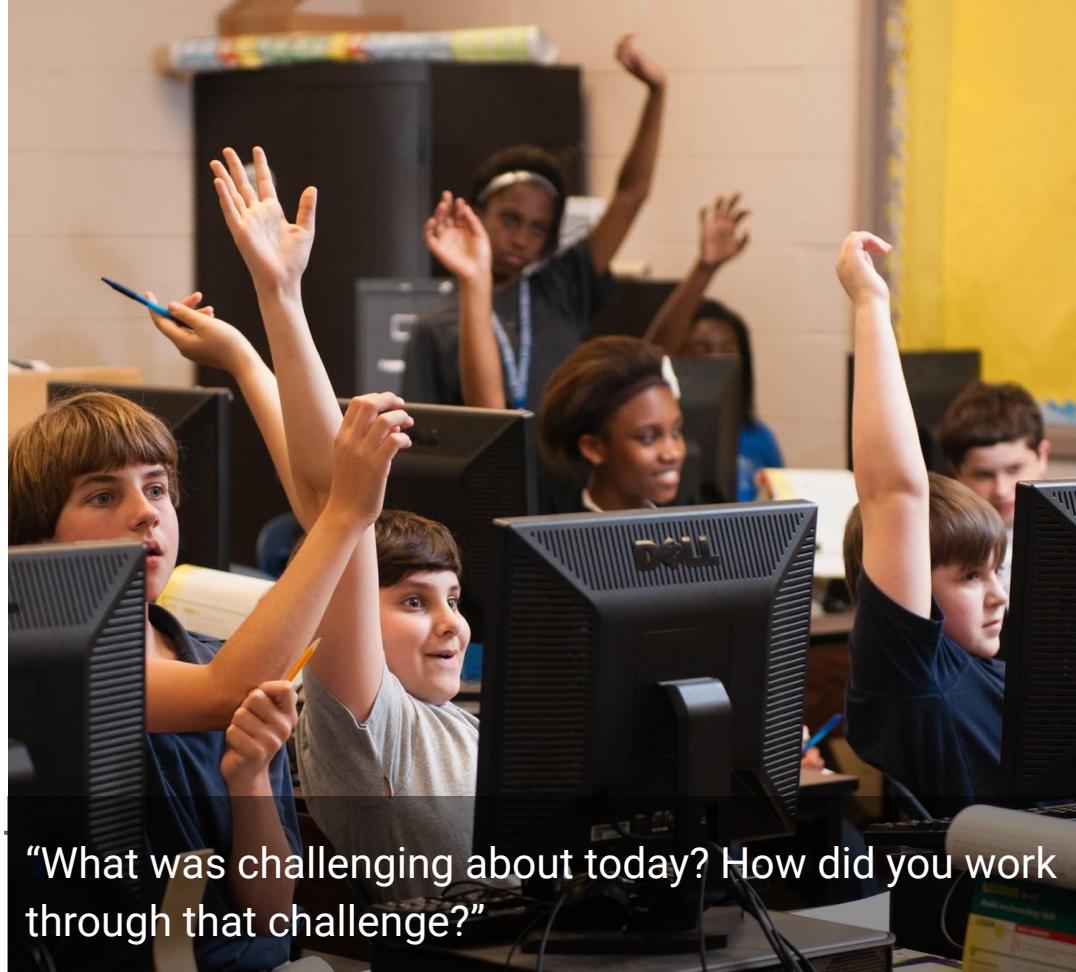
5
mins

Work Time

40
mins

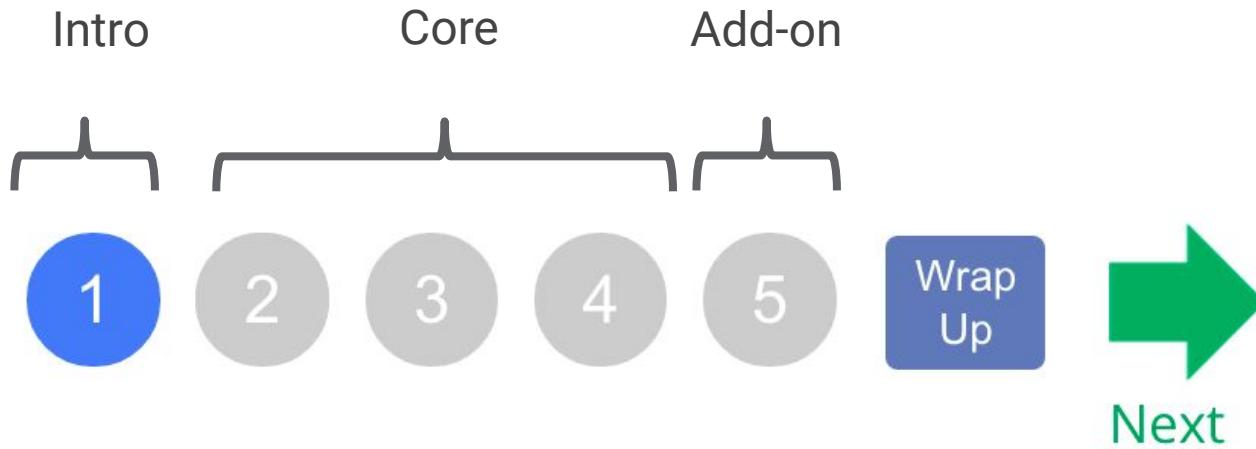
Closing Discussion

10
mins



“What was challenging about today? How did you work through that challenge?”

A day in the life



[Example Student Project](#)

Impact



Numbers

As of July 2017



919,000+ students



32,500+ clubs



77 countries



“This is one of the most organized after school programs that we have ever been a part of. There was no extra stress or work on the teachers hosting the program.”

Teacher Host

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“For potential volunteers, the CS First program is great because it is very rewarding to see students work through their problems. They end up with a project that is completely unique to them and to see their excitement is great.”

Volunteer Guru

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Google Proprietary



“I got so excited because they told me I could bring my folder home in the end of the course and never stop programing.”

CS First Student

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Starting a Club



Starting a Club

What You Need



- One computer per student with internet
- Headphones for individualized learning
- Teacher hosts or volunteers to supervise and facilitate the club

What We Provide

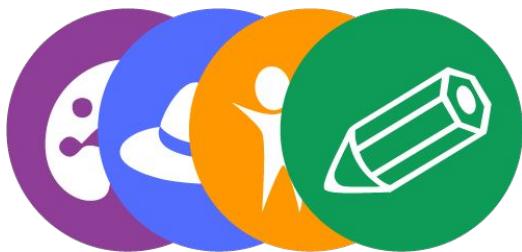


Passports, badges, lesson plans, solutions, marketing posters, website tools, and more.

To start a club, visit:

www.cs-first.com/start-club

Creating a club takes 5-10 minutes. Our website will guide you through these steps:



Choose a theme and request
materials



Create a schedule



Check computers to make sure all required
website work properly

Sample Activities

These short, hour-long activities allow you to try out CS First and introduce your students to computer science without committing to a complete 8-activity theme. They're perfect for special events such as Hour of Code or CSEdWeek, or as practice to help you familiarize yourself with CS First before starting a normal theme.



High Seas Activity

Sample CS First with "High Seas," an introductory activity designed for use in a classroom setting or at a conference, hackathon, or other event like Hour of Code. "High Seas" is a one-time, standalone activity and not part of a regular CS First theme, so it does not use or provide printed materials. Club creation with usernames and passwords for students is optional.

[Try Now](#)[View Lesson Plans](#)

Gumball's Coding Adventure

Sample CS First with "Gumball's Coding Adventure," an introductory activity based on Cartoon Network's Amazing World of Gumball episode "The Signal." This activity can be used in a classroom setting, at a conference, or at an event like Hour of Code. "Gumball" is a one-time, standalone activity and not part of a regular CS First theme, so it does not use or provide printed materials. Club creation with usernames and passwords for students is optional.

[Try Now](#)[View Lesson Plans](#)

Complete Themes

These themes are intended for in- or after-school use over several days or weeks, and lead students through building 8 complete projects while introducing them to core computer science concepts.



Storytelling

In Storytelling, students use computer science to tell fun and interactive stories. Storytelling emphasizes creativity by encouraging club members to tell a unique story each day.

[Try Now](#)[View Lesson Plans](#)

Friends

In Friends, students are encouraged to sign up with a friend or make a new friend in the club. Friends emphasizes teamwork by allowing club members to tell the story of how their friendship started and imagine a company together.

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Fashion & Design

In Fashion & Design, students learn how computer science and technology are used in the fashion industry while building fashion-themed programs, like a fashion walk, a stylist tool, and a pattern maker.

[Try Now](#)[View Lesson Plans](#)

Art

In Art, students create animations, interactive artwork, photograph filters, and other exciting, artistic projects.

[Try Now](#)[View Lesson Plans](#)

Social Media

In Social Media, students create fun social media style applications and games while learning about the computer science concepts that enable these programs to work.

[Try Now](#)[View Lesson Plans](#)

Sports

In Sports, students use computer science to simulate extreme sports, make their own fitness gadget commercial, and create commentary for a big sporting event.

[Try Now](#)[View Lesson Plans](#)

[About](#) [Start a Club](#) [Volunteer](#) [Advocate](#) [View Materials](#) [Resources](#) [Training](#) [Partners](#) [Help](#)

Storytelling

[Videos](#) [Lesson Plans](#) [Materials](#)

- Activity 1
Check It Out
- Activity 2
Dialogue
- Activity 3
Setting
- Activity 4
Premise
- Activity 5
Characterization
- Activity 6
Interactive Storytelling
- Activity 7
Personal Narrative

[About](#) [Start a Club](#) [Volunteer](#) [Advocate](#) [View Materials](#) [Resources](#) [Training](#) [Partners](#) [Help](#)

Storytelling

[Videos](#) [Lesson Plans](#) [Materials](#)

- Activity 1: Check It Out
In this first activity, club members learn about the scope and procedures of the club, then tell a story in Scratch. In the story, a character walks through a scene describing what they see.
- Activity 2: Dialogue
In this activity, club members create a story in which two characters talk to each other without using questions.
- Activity 3: Setting
In this activity, members create a dynamic stormy day setting, complete with rain and lightning. After developing a setting, club members program a stormy day story.
- Activity 4: Premise
In this activity, club members build a story around one of four premises. To do this, club members are encouraged to explore a variety of add-on videos.
- Activity 5: Characterization
In this activity, club members create a story in which one character narrates another character's actions and thoughts.
- Activity 6: Interactive Storytelling
In this activity, club members create a story in which the audience can make a decision.



Storytelling

[Videos](#) [Lesson Plans](#) [Materials](#)

Download materials: These optional materials make the club more social and fun, and help you lead the club. You can print these materials, or request a free kit through your dashboard in select countries.



Informational Flyer

Post this flyer to help recruit students for your club.

[Download](#)

Promotional Video

Show this video during assemblies, homeroom, news broadcasts, or existing after-school activities.

[Download](#)

Lesson Plans

Lesson Plans offer step-by-step instructions for Gurus and Hosts, including optional scripts.

Special Printing Instructions: You can download and print all lesson plans, or customize each one by going to its page and setting its view options.

[Download All](#)[View Each One](#)

Certificates

Certificates are distributed on the final club session. Use the club roster to complete and sign the certificates.

Special Printing Instructions: Certificates look and feel the best when printed on heavier weight paper or cardstock. Crop them so that there are no white edges.

[Download](#)

Passports

Each club member receives a passport to record their usernames and passwords, and to keep track of their progress throughout the club.

Special Printing Instructions: Print this document double-sided, and set your printer to flip on the short edge. Then, fold the booklet in half and staple down the middle.

[Download](#)

Solution Sheets

Solution Sheets provide example solutions for each project. Use these as a reference to help struggling club members.

[Download](#)

Google+ Community Board

The G+ board should be hung in a visible location at the front of the club room. Following the final video, club members are asked to post words of thanks or encouragement, called a "shout-out," to a club member who helped them.

Special Printing Instructions: This poster is best printed on 11" x 17" paper.

[Download](#)

Participation Badges

Club members receive badges, or stickers, to place in their passports as they complete activities.

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Show this video during assemblies, homeroom, news broadcasts, or existing after-school activities.

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[Download](#)

Club Roster

Use the club roster to record student usernames and passwords which are generated on the CS First website.

[Download](#)

Contingency Plan

Contingency plans provide alternative activities that can be completed without a computer. Use these in the event a technical problem prevents a club from running as planned.

[Download](#)

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Special Printing Instructions: This document is designed to be printed on [these label sheets](#).

[Download](#)



Exit and Resume Later

Choose Theme

Important Information

Each theme includes eight activities that are suited for any student, from novices to more experienced programmers. You must create a new club for each theme you want to host, and you may host multiple clubs of different themes throughout the year. We recommend using only one theme per club in order to foster collaboration, problem solving, and sharing among students. All themes include diverse computer science concepts and applications, including sound, gamification, art, and more.



Storytelling

Difficulty: Easier

[Explore materials](#) | [See student examples](#)

In Storytelling, students use computer science to tell fun and interactive stories. Storytelling emphasizes creativity by encouraging club members to tell a unique story each day.

[Choose This Theme](#)

Friends

Difficulty: Moderate

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[Choose This Theme](#)

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Difficulty: Moderate

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In Fashion & Design, students learn how computer science and technology are used in the fashion industry while building fashion-themed programs, like a fashion walk, a stylist tool, and a pattern maker.

[Choose This Theme](#)

Art

Difficulty: Moderate

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In Art, students create animations, interactive artwork, photograph filters, and other exciting, artistic projects.

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Social Media

Difficulty: More Challenging

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In Social Media, students create fun social media style applications and games while learning about the computer science concepts that enable these programs to work.

[Choose This Theme](#)

Sports

Difficulty: More Challenging

[Explore materials](#) | [See student examples](#)

In Sports, students use computer science to simulate extreme sports, make their own fitness gadget commercial, and create commentary for a big sporting event.

[Choose This Theme](#)

Exit and Resume Later

Create Schedule

Important Information

Your club schedule is used to send students to the correct activity when they log in, make the agenda timer and showcase selector tools work, and inform volunteers (if any) when to arrive.

- Set your start date to at least three weeks in the future to allow your materials to arrive on time and allow time for recruiting students and volunteers
- You can edit the schedule at any time if your club dates or times change
- Make sure your time zone is set correctly so dates and times on the site display correctly and schedule-based features work properly

Select the first day of your club

On from to [Regenerate Schedule](#)

 Skip detailed scheduling

Edit and verify your club schedule

Below is a tentative schedule for a club that runs twice a week based on your starting date, but you can edit each date and time individually to match your real schedule. Accurate scheduling is important for potential volunteers, as well as to ensure that important cs-first.com features work for your club. Please verify that there aren't any school conflicts (parent teacher conferences, etc.) with these dates. Please update these dates if they change.

Club Activity	Date	Start Time	End Time
Activity 1	<input type="text" value="09/04/17"/>	<input type="text" value="3:30 pm"/>	<input type="text" value="4:30 pm"/>
Activity 2	<input type="text" value="09/06/17"/>	<input type="text" value="3:30 pm"/>	<input type="text" value="4:30 pm"/>
Activity 3	<input type="text" value="09/11/17"/>	<input type="text" value="3:30 pm"/>	<input type="text" value="4:30 pm"/>
Activity 4	<input type="text" value="09/13/17"/>	<input type="text" value="3:30 pm"/>	<input type="text" value="4:30 pm"/>
Activity 5	<input type="text" value="09/18/17"/>	<input type="text" value="3:30 pm"/>	<input type="text" value="4:30 pm"/>
Activity 6	<input type="text" value="09/20/17"/>	<input type="text" value="3:30 pm"/>	<input type="text" value="4:30 pm"/>
Activity 7	<input type="text" value="09/25/17"/>	<input type="text" value="3:30 pm"/>	<input type="text" value="4:30 pm"/>
Activity 8	<input type="text" value="09/27/17"/>	<input type="text" value="3:30 pm"/>	<input type="text" value="4:30 pm"/>
Make Up Activity 1	<input type="text" value="10/02/17"/>	<input type="text" value="3:30 pm"/>	<input type="text" value="4:30 pm"/>

Choose your time zone

If your time zone is not set correctly, students may not be sent to the right activity and the club schedule may be displayed incorrectly.



Get Materials



Print Materials

All materials (including marketing) are available digitally for printing. However, Google can also ship free materials directly to your club.

Do you want materials shipped to your club? Yes No

Print materials will not be shipped.

[Cancel](#)

[Don't ship me materials](#)



Specify Your Role

Music & Sound @ USU Extension - Washington County Office 9/4/17 - 9/27/17 (Back to club)

What is your role for this club?

- I will be a **host** for this club.
 I will be a **host** and a **guru** for this club.

[Set Role](#) [Cancel](#)

A **host** is responsible for **logistics**:

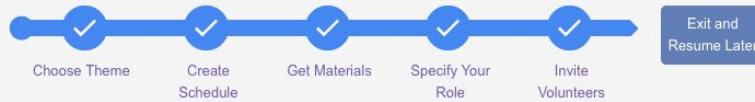
- providing access to a location and computers
- recruiting students for the club
- being present during the club for emergencies
- coordinating any needed permission slips and transportation



A **guru** is responsible for **leading the club**:

- facilitating discussions and answering student questions using guided materials
- providing encouragement to students
- keeping the club on schedule





Invite Volunteers

Music & Sound @ USU Extension - Washington County Office 9/4/17 - 9/27/17 (Back to club)

Do you want to find volunteers for your club? No Yes

You can lead your club on your own, or find volunteers to help you run or lead your club with you.

While Google can help put you in touch with potential volunteers, it is the responsibility of the club to perform any background checks and vetting that may be required.

Continue **Cancel**





Now it's your turn!



Visit: **g.co/csfirst**

Presenter Contact Info:

Paul Hill | PaulHill_io

Additional Links

Student Projects

[Music Video by csf1324](#)

[Music Video by csf1437](#)

[Tarbosaurus Bataar by csf1477](#)

Videos

[CS First Promo Video](#)

[Scratch Project Montage](#)