Your partnership with TEALS has a clear goal: to create and grow a sustainable computer science program at your high school.

This document contains program requirements and best practices for a successful implementation of TEALS at your school. These guidelines will help you get the most out of our partnership, and ensure the success of our joint efforts.

Read this document thoroughly before your school interview, and refer to it often throughout the year!
Program Description and Levels of Support

TEALS helps high schools build sustainable computer science (CS) programs by pairing trained CS industry professionals with a classroom teacher to team-teach CS. Over two years, the classroom teacher gradually takes over the responsibilities of teaching the course, eventually without volunteer support. This year, TEALS offers three levels of support depending on the classroom teacher’s level of CS content mastery:

- Co-Teaching Model
- Teaching Assistants Model
- Consulting Support Model

A TEALS regional manager will determine your school’s level of support with you and your classroom teacher during the school interview.

The following diagram is a visualization of teacher versus volunteer responsibilities within each model type over time.

Cost Considerations

As a privately funded philanthropic organization, TEALS does not collect fees from our partner schools. We do require schools to pay reimbursements or stipends to the volunteers depending on the level of support. These are specified in the model-specific sections that follow.

Depending on model, additional costs might include purchasing required textbooks (varies by course), purchasing and maintaining computers for use in the classroom, and compensating your teacher for up to 24 hours of summer PD plus additional prep time during the school year to manage the volunteer team.

TEALS is not an accredited institution, and does not have the authority to issue course credits recognized across the US. Therefore, we expect schools to work within their rules and infrastructure to recognize the teacher’s achievement in an appropriate fashion (for example, equivalency of PD credit hours, or industry experience).
Co-Teaching Model: Full Classroom Support

**Timeline:**
Typically Years 1-2 with TEALS

**Description:**
The Co-Teaching Model is for schools with a classroom teacher who has moderate to no computer science content knowledge, and who cannot teach the computer science course on their own.

The partner teacher must commit to accepting handoff of the course within 2 years. Once course handoff occurs, many schools move to the Teaching Assistants Model or Consulting Support model.

During the spring, TEALS regional managers meet with schools to assess the teacher’s progress and readiness for handoff, the school’s future plans for CS, and how TEALS can continue to support the school through our Teaching Assistants or Consulting Support Models.

**Number of Volunteers:**
TEALS will provide 2-4 volunteers to teach and TA the class, with the partner teacher managing the volunteer team.

**Volunteer Costs:**
$5000 per course per year to be split evenly between the volunteers as a volunteer stipend to help cover costs they incur over the school year

Teaching Assistants Model: Regular TA Support

**Timeline:**
Typically Years 2-3 with TEALS

**Description:**
This model is for schools with a partner teacher who has solid computer science content knowledge. They could teach the computer science course on their own, but would benefit from having TAs in the classroom on a regular, weekly basis to bolster their CS content knowledge and reduce the student-to-teacher ratio. Additional benefits include having industry expertise and relevance in the classroom – with a direct connection to industry professionals – driving student excitement to grow CS enrollment at your school.

The classroom teacher is encouraged to continue to be a part of the TEALS community both in person (at meetups and other events) and in our online community forum.

**Number of Volunteers:**
1-2 volunteers to TA the class on a regular, weekly basis

**Volunteer Costs:**
The school must pay all expenses incurred by volunteers in order to meet the school’s volunteer requirements, such as the cost of background checks and fingerprinting. In addition, we recommend that schools pay something to help cover costs incurred by these regular volunteers over the course of the school year. For example, some schools reimburse volunteers for their mileage while other schools continue to pay a flat rate up to and including a quarter allotment of the Co-Teaching Model stipend.
Consulting Support Model: Mentorship Support

**Timeline:**
Typically Years 3+ with TEALS

**Description:**
This model is for schools with a partner teacher who has solid computer science content knowledge and is able to teach the computer science course on their own.

TEALS may provide a volunteer to assist the teacher with technical knowledge via phone or online consultation. This volunteer mentor may visit the classroom occasionally as a teaching assistant or to lead a guest lecture or career talk. The teacher and students benefit by having access to industry expertise and relevance, driving student excitement to grow CS enrollment at your school.

The classroom teacher is encouraged to continue to be a part of the TEALS community both in person (at meetups and other events) and in our online community forum.

**Number of Volunteers:**
1 volunteer mentor

**Volunteer Costs:**
The school must pay all expenses incurred by volunteers in order to meet the school’s volunteer requirements, such as the cost of background checks and fingerprinting.

Distance Learning Classes

In many parts of the country (including rural areas, but also parts of large cities), we can’t find volunteer candidates who live or work near the schools. In these cases, we employ the Distance Learning model, where volunteers participate in class remotely using video conferencing software, like Skype for Business or Google Hangouts.

Distance Learning courses must satisfy the regular TEALS program requirements, as well as additional technical and logistical requirements, which are detailed in a separate document and abbreviated below.

**Technical Requirements**
Due to the nature of remote teaching courses, additional technical requirements to actually hold the class include:

- Sufficient internet bandwidth to ensure reliable and high fidelity teleconferencing
- An email address that can be accessed from school for each student taking the course
- Logitech BCC 950 Conference Cam for the classroom (or equivalent);
- A webcam and microphone-equipped headset for every student
- A teleconferencing client that is proven to work for your school district (for example, Skype for Business, Google Hangouts, etc)
- A wireless, handheld microphone
- (Optionally) a wireless, wearable microphone

**Logistical Requirements**
Due to the differences with the remote pedagogy, you should limit class size to 15 students for Distance Learning classes. Other requirements include:

- The teacher must attend an additional 2-3 hours of summer training that is specific to remote teaching, and hold a mock teaching session with volunteers to ensure that the technical setup is working
- The technology administrators must ascertain that all technical requirements are met and attend the mock session to verify that the setup works
Course Offerings
TEALS has two standard course offerings:

- **Introduction to Computer Science**: This survey course offers students a hands-on introduction to computer science. Students will program using a block-based graphical interface as they learn how to translate their ideas into code.

- **AP Computer Science A (AP CS A)**: This College Board course is an introduction to computer programming using the Java programming language, with an emphasis on object-oriented programming, problem solving and algorithm development.

Additional offerings include:

- **Pilot program of College Board’s new AP CS Principles course**: This new AP course is a complement to AP CS A. Students can take both courses in any order.

- **Support for post-AP CS advanced topics and projects courses**, for schools that have completed implementation of AP CS A

The next several pages of this guide provide details about each course.
Introduction to Computer Science

Course Duration:
Intro to CS is a semester-long course, meant to be offered twice in the school year (once in the fall and again in the spring). For schools that only offer year-long classes, there is an expanded version of this course available.

Prerequisites:
Students taking this course are expected to have successfully completed Geometry.

Course description:
Computing has changed the world in profound ways: it has opened up wonderful new ways for people to connect, design, research, play, create, and express themselves. However, using the computer is just a small part. This survey course offers students a hands-on introduction to computer science. Students will program using a block-based graphical interface as they learn how to translate their ideas into code. Students will learn about big ideas in computing such as abstraction and design, and will explore various aspects of computing relevant to themselves and to society.

Curriculum:
Our Intro CS curriculum is derived from UC Berkeley’s CS 10: Beauty and Joy of Computing course. We have worked with UC Berkeley to adapt the first ten weeks of the course to be specifically tailored to high school students. Our curriculum materials are available for review upon request.

The course is A-G approved for University of California credit for high school students in California.

Alternative Course Title:
Many students in your schools may not know what computer science is, or why they should be excited about it. To entice students to sign up for the class, consider listing the course with an alternate, more exciting title like "Intro CS: the Beauty and Joy of Computing" or "Intro Computer Science: Building 2D Games."

The following requirements must be met before school starts:
Technology requirements:
A desktop or laptop computer manufactured within the last 4 years must be made available to each student for use during class with at least one of the following:

- Access to online programming environment available at http://snap.berkeley.edu/ (if school has sufficient bandwidth).
- Build Your Own Blocks, a free programming language from UC Berkeley, is installed (available at: http://byob.berkeley.edu/)

Required textbook:
Blown to Bits, by Abelson, Ledeen, Lewis. Available as a free download from www.bitsbook.com
Advanced Placement Computer Science A

Course Duration:
AP CS A is a one year-long course

Prerequisites:
Students taking this course are expected to have successfully completed Algebra II, and to complete summer coursework if assigned.

Introduction to Computer Science is not a prerequisite for AP CS A.

Course Description:
The AP CS A course prepares students to take the College Board AP computer science exam. This challenging class is for those students who are interested in an in-depth course in computer science theory and practice. Students will learn to program in the Java language, with emphasis on problem solving, computer science theory, applications, algorithms, programming style, and programming design. The curriculum is based on the CSE142 course for students intending to major in Computer Science at the University of Washington – a top 10 Computer Science program.

Students should plan on devoting at least one hour per day outside of class to succeed in this course. This is one of the hardest and most rewarding classes you can take in high school.

Curriculum:
The AP CS A curriculum is derived from University of Washington’s CSE 142 course for computer science majors. Our curriculum materials are available for review upon request.

TEALS will provide schools with a College Board-approved course syllabus and AP Audit approval code.

The following requirements must be met before school starts:

Technology requirements:
A desktop or laptop computer manufactured within the last 4 years must be made available to each student for use during class with the following:

- Eclipse IDE for Java EE, a free, open source Java development environment is installed (available at: http://www.eclipse.org/downloads/)
- Java Runtime must also be installed

Note: The Java development environment cannot run on iOS or Android devices or Chromebooks.

AP CS students must have access to a computer at home for assigned homework and projects. TEALS does not provide hardware for student use during or outside of class. It is the school’s responsibility to help students get connected at home. There are a variety of 3rd party organizations and programs, like Comcast Essentials, that can help.

Required textbook:
AP CS Principles

In 2016-17, College Board is launching a second AP CS course called AP Computer Science Principles (AP CSP). **TEALS plans to pilot AP CSP with a small cohort of schools in 2016-17. If you are interested in being considered for selection as one of our pilot schools, please indicate so when you fill out your school application.**

AP CSP will introduce students to the creative aspects of programming, abstractions, algorithms, large data sets, the Internet, cybersecurity concerns and computing impacts. It will give students the opportunity to use technology to address real-world problems and build relevant solutions.

AP CSP does not replace but rather complements AP CS A by teaching foundational CS concepts with the goal to broaden participation in the study of CS. Students can take both AP CS A and AP CSP, and can take them in any order. The following table provides a high-level comparison.

<table>
<thead>
<tr>
<th>AP Computer Science A</th>
<th>AP Computer Science Principles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curriculum is focused on object-oriented programming and problem solving</td>
<td>Curriculum is built around fundamentals of computing including problem solving, working with data, understanding the internet, cyber security, and programming</td>
</tr>
<tr>
<td>Java is the designated programming language</td>
<td>Curriculum or teacher may choose the programming language(s)</td>
</tr>
<tr>
<td>Encourages skill development among students considering a career in computer science and other STEM fields</td>
<td>Encourages broader participation in the study of computer science and other STEM fields</td>
</tr>
</tbody>
</table>
| AP assessment experience:  
  • Multiple-choice and free-response questions (written exam) | AP assessment experience:  
  • Two performance tasks students complete during the course to demonstrate the skills they have developed (digital artifacts)  
  • Multiple-choice questions (written exam) |

Advanced Topics and Projects in Computer Science

Advanced Topics and Projects is a course for students who have successfully completed the AP Computer Science A, and received a 4 or 5 on the exam. TEALS can support this program in schools that have multiple sections of Intro CS and AP CS already established.

The course does not have a formalized curriculum, rather it is project-based and mostly self-directed with online resources, culminating in a major keystone project. TEALS volunteers provide mentoring and technical guidance. The course resembles an “independent study” except that there are multiple students meeting at a regular time.
Selecting a Partner Teacher

Ultimately, TEALS is a teacher training program. We work with teachers who are passionate about bringing access to computer science to more students.

For schools in the Co-Teaching Model phase, you must select an experienced partner teacher who:

- Buys into TEALS’ model of professional development (PD) through co-teaching
- Is willing to manage the volunteer team, including communicating with the team over the summer to help plan and prepare the course
- Will participate in an appropriate summer PD course
- Commits to accepting handoff of the course (being able to teach the course themselves) within 2 years
- Has 2+ years classroom experience
- Is committed to stay at your school for a while

Teacher Background and Experience

We’ve worked with teachers with a variety of backgrounds. Math and science teachers are most common, but we have also worked with social studies teachers, business/CTE teachers, and others. Teachers who have some prior familiarity with programming have a leg up in the process, but this is not a requirement.

Your chosen teacher will have an increased time commitment due to learning a new subject area, as well as managing a team of volunteers who don’t have classroom teaching experience. For this reason, we require that you select a teacher with at least 2 years of classroom experience.

We find that teachers with experience teaching AP-level math or science courses transition with less difficulty to AP CS.

Teacher’s Class Schedule

You must schedule the selected partner teacher for computer science during the time the TEALS class meets. This is typically 1st period, for volunteer availability before they head to their day jobs.

Summer Planning and Communication

In the Co-Teaching Model, your teacher must be available to meet and communicate regularly with the TEALS volunteers over the summer to help plan and prepare the course.

Teachers using the Teaching Assistants Model or Consulting Support Model should connect with their volunteers over the summer, and do the classroom plan together so that the volunteers know how to best prepare for the school year.

Summer Professional Development

Teachers in the Co-Teaching Model must participate in an appropriate PD program over the summer before their first year with TEALS.

The goal of participation in TEALS is to train a classroom teacher from your school to teach computer science independently, and ultimately grow a sustainable program of multiple courses and sections. To achieve this result, we’ve designed a professional development model that outlines the steps teachers should take throughout their partnership.

See Appendices A and B of this document for the professional development model and the list of PD programs for Intro CS and AP CS A.

Additional Prep Time

As with any new course you offer, your teacher will need plenty of time to prep for this class, including time spent communicating and collaborating with the TEALS volunteers about the teaching schedule, lesson plans, and class materials. To account for this prep time, you should schedule the teacher a standalone prep period, or compensate the teacher for the additional time spent outside of the school day.

Commitment to Course Handoff

The classroom teacher must make clear progress towards learning the course’s content and pedagogy each semester. TEALS expects teachers to accept handoff of a course within 2 years, so this progress is a major consideration when partner schools reapply to TEALS for a second year.
Teacher Participation in the TEALS Community

Throughout the year, all partner teachers will be required to sign into the TEALS Dashboard to complete mandatory surveys and information requests (such as providing classroom demographics, t-shirt designs, and field trip attendance). Teachers are also required to complete a twice-a-year self-assessment to help us understand their progress towards course handoff.

TEALS is a growing community of educators and volunteers across the country. Teachers are invited to attend meetups and events throughout the summer and school year for additional PD and to network with members of the TEALS community and share best practices.

TEALS also maintains an online community through the TEALS Dashboard. We strongly encourage teachers to engage in the online community to learn more about teaching CS and share their successes and challenges in the classroom.
Recruiting Volunteers

The size of our program is limited by the number of talented tech professionals we can find who are willing to volunteer in schools. **While TEALS does high-level recruitment nationally and regionally, we require our partner schools to actively participate in recruiting local volunteers. Especially for schools in new regions for TEALS, demonstrating an ability to help us find volunteer candidates makes our partnership decision easy.**

The following recruitment strategies have been effective for partner schools in the past. Be prepared to discuss your school’s recruitment plan during your school’s interview.

Recruitment Strategies and Materials

TEALS volunteers with a connection to your school become more involved and invested, and are more likely to return for a second year. Perhaps they grew up or settled in the area, or have kids that attend, will attend, or previously attended your school. In other words, the best volunteers come from the local and school community. Use the following strategies to identify candidates:

Send a Standalone Letter to Your School Community (Required)

Schools that send a **standalone email** to their school community typically have great success in finding interested and qualified volunteers. You can send the letter from the principal at the school-level or from the superintendent at the district-level. You should also ask for volunteers in person at school events where you have a large number of parents present.

View an example letter in Appendix C of this document.

Connect with Local Partners

Are there local businesses that employ software engineers? Are there colleges or universities with computer science departments? Ask these potential partners to help recruit their employees or students as TEALS volunteers. They can pass along written communications or organize information sessions for their constituents.

View an example letter in Appendix C of this document.

Spread the Word through Local Leaders and Interest Groups

The following groups of people can help us spread the word and identify potential volunteers:

- Chamber of commerce
- Economic development council
- Meetups
- Technology Business Groups
- Mayors, state legislators, local civic leaders

View an example letter in Appendix C of this document.

Volunteer Interview Process

Once candidates are identified by the school and by TEALS, TEALS and school staff will conduct joint interviews to determine the final volunteer team. We highly encourage schools to send a representative to participate in the interviews, but it’s not required.

If We Can’t Find Volunteers

If we can’t find enough local volunteers to staff a TEALS class at your school, the next option is to work with volunteers located somewhere else, who can participate in your class remotely using video-conferencing technology (like Skype for Business or Google Hangouts). However, we don’t have an unlimited supply of remote volunteers, and we can’t guarantee their availability. Priority for remote volunteers goes to schools located in hard-to-reach geographical areas. Read about additional requirements for **Distance Learning classes** later in this document.

If you’re not interested in a remote team, or there aren’t any remote volunteers available, we can’t continue with our partnership. Help us avoid this outcome by actively participating in the recruitment process using the strategies outlined in the previous section.
Scheduling the Class and Enrolling Students

Make the most of the volunteers' time and energy while building a strong computer science program at your school:

- Schedule the class for 1st period so volunteers can attend
- Recruit a full roster for your CS class, with a diverse group of male and female students
- Choose students who are excited about computer science
- Make sure that key people in your building (counselors, teachers in STEM subjects, administrators, etc) know about your computer science courses and meet the TEALS volunteers

In general, Intro CS classes should have 20-30 students and AP CS classes should have 15-25 students.

Class Scheduling

Most TEALS volunteers work full-time jobs. In general, they are only available to participate in a 1st period class, to be finished by 9:30am. Unless you can identify volunteers who are available at different times, assume that you need to schedule your TEALS computer science class 1st period.

We’ve attempted to run “zero period” and after school classes in the past. These sections often suffer from low attendance or high tardiness, and some students don’t take the class seriously because it “doesn’t feel like a real class.”

Recruitment Techniques

Tell teachers of other STEM subjects at your school about the new computer science class. They can help recruit students for the course. Be sure to also fill in your guidance counselors.

Many TEALS schools have had success using Code.org’s Hour of Code as a recruitment tool. This flexible, self-directed activity provides a first introduction to programming for students of all ages and ability levels. You can run Hour of Code activities during classes, lunch periods, or after school.

Identifying Students Prepared to Succeed

Intro CS is designed as a broad survey course appropriate for students of many ability levels. AP Computer Science is a college-level class appropriate for students with excellent motivation and study skills.

Both the Intro and AP curricula are rigorous and very different from computer skills, computer applications, digital arts/animation, or digital literacy classes. Computer Science classes make students think in a new way.

Especially while the courses are new to your school, it is important to select only students who are interested in CS and able to handle the course work (including study skills, and behavioral issues). This is not a place to put students simply because they have an open period and expect that CS class is equivalent to playing games.

Summer Homework

Many schools give students summer assignments to prepare them for their fall classes and keep them out of trouble during their break. A great summer project for AP CS A students is to take part or all of the free online Udacity Java Programming course.
Preparing the Classroom
As with any class, students in computer science need a classroom environment that supports their learning. Since our computer science classes include computer programming from day one, you must make sure the classroom equipment is prepared and ready to go prior to the first day of school.

Required Materials
The AP Computer Science A class requires one physical textbook for each student. Students will read pieces of the book, complete practice problems from it, and use it as a reference. Order the textbook over the summer so that it arrives in time to be tagged and placed in the classroom before the start of school.

Equipment
Your classroom needs to have one computer per student, with a few extras for when something breaks.

Intro CS works with any computer that can comfortably run a modern web browser, including PCs, Macs, and Chromebooks.

AP CS A requires hardware that can run the Java Development Kit. Generally, this means a PC running Windows or a Mac laptop or desktop. Java cannot run on iOS or Android devices or on Chromebooks.

Installation and Testing
Prior to the start of school, install all required software on the class computers. School firewalls block access to many websites. Ensure that the websites required for the course are added to the allowed list, and test that they work from the classroom.
Supporting Your Volunteers

The practices described in this section apply to the Co-Teaching and Teaching Assistants program models.

We ask a lot of our volunteers – as much as 300 hours over the course of the year. In addition to the ~2-3 hours per week each TEALS volunteer spends in the classroom, many add hours to their weekly commute, spend time planning for class and grading work, and commit 50 hours to summer training and planning. **We need you to do everything possible to make your volunteers feel that they are a vital part of the school community, that you appreciate their extraordinary effort and time commitment, and that the school is moving towards CS sustainability.**

The program elements described in this section will help you create a welcoming and supportive environment so that your TEALS volunteers feel valued and return to your school for a 2nd year.

Beginning of Year Logistics

Background Checks

Each locality has distinct requirements around background checks. You are responsible for defining the requirements for the volunteers at your school, and for taking them through the process. Please make it as simple as possible for them.

Building Entry Procedures and Parking

Help expedite the volunteers’ building entry process by issuing them ID cards, introducing them to the school security guard and main office support staff, and (if applicable) reserving a top-notch parking space near the appropriate building entrance.

Computer/Network Access

Volunteers will need to use the computers at your school and your school’s internet connection. Issue them network accounts, or give them the login information they need. If your school uses a Learning Management System for posting and collecting student assignments, create teacher accounts for the volunteers.

Teacher/Volunteer Collaboration

For schools in the Co-Teaching Model phase, this is probably everybody’s first time participating in a team-teaching setting. Your administrative team should set clear expectations around your teacher’s participation in the class. **Nothing contributes more to volunteer retention than the participation level of the partner teacher.** Help the teacher and volunteers find ways to work together from day one. Appendix A and B of this document provides more detail into the expected participation of the partner teacher for Intro CS and AP CS A.

Provide a Dedicated TEALS Partnership Coordinator

Choose an appropriate administrator to serve as the point of contact for the volunteers. This person should get to know the volunteers personally and check in with them periodically. Ideally, this person will also do the classroom observations. Be sure to give the volunteers this person’s contact info!

Meet Prior to the Start of School

Invite the volunteers to attend your back-to-school faculty day before school starts, and hold a meeting to officially welcome them into the school. This meeting is the time to explain all of the other items in this section, and answer outstanding questions.

Volunteer Stipends

As detailed in the Program Description and Levels of Support section, TEALS requires partner schools to set aside stipends or reimbursement costs for volunteers (amount varies by the support level). These funds serve 3 purposes:

1. The volunteer is committed to the school for the year
2. The school is committed to investing in and building a sustainable CS program
3. A formal contract allows the TEALS volunteer to become an integrated part of the school community with account logins, access to school resources, a parking spot, etc
Partner schools in the Co-Teaching Model should split the $5,000 stipend equally between the TEALS volunteers. For example, if you have 2 TEALS teachers and 2 TEALS TAs, each volunteer will receive $1,250 for the entire school year. If there are 3 volunteers, each would receive $1,666.

All TEALS partner schools must find their own funding for the stipends. Most find it within their professional development funding allocation or from state and federal grants. Others are supported by their school foundations and PTAs.

The school or district is responsible for clearing the volunteers for working with children in compliance with school and district policy (for example, through background checks and/or fingerprinting). Schools in the Teaching Assistants and Consulting Support models must reimburse volunteers for costs incurred to comply with your policies.

Sometimes the companies that employ the TEALS volunteers offer volunteer time-matching donations. You should reach out to your volunteers to determine whether their companies have matching programs, and if so, to encourage the volunteers to report their volunteer hours. These funds should be earmarked and used towards growing the CS program at the school.

Classroom Observations
For classrooms in the Co-Teaching Model, we require each school to conduct a series of formal observations of the teaching team to ensure quality of instruction and provide feedback to increase teacher effectiveness. The observer can be one of the following people:

- Principal or TEALS Partnership Coordinator
- District CTE director
- Relevant department head (math, science, CTE)

Between September and December, the observer will complete 4 classrooms observations. Try to observe each of the TEALS volunteers in the classroom twice, allowing sufficient time between observations for volunteers to implement the first round of feedback. TEALS provides a feedback template that the observer will complete and submit electronically.

In addition, your partner classroom teacher should work closely with the TEALS volunteers to resolve day-to-day classroom issues and provide mentorship and guidance on teaching practices and pedagogy.

A TEALS regional manager will also visit your school to perform classroom observation(s) at various points during the school year.

**Observation Timeline**
**AUGUST**
A building administrator must check-in with the TEALS team at least two weeks prior to the start of classes to check on team progress and provide support and guidance regarding school and classroom logistics.

**SEPTEMBER-OCTOBER**
Observer completes 1st cycle of observation and feedback, reporting urgent issues to TEALS staff.

**NOVEMBER-DECEMBER**
Observer completes 2nd cycle of observation and feedback, reporting urgent issues to TEALS staff.

**JANUARY-JUNE**
Observer continues to provide support as necessary, reporting urgent issues to TEALS staff.

**Showing Appreciation**
Your volunteers, teacher and students feel their hard work validated when you can find places to showcase it publicly. Past partners have published stories on the school district blog, in local or national media, and in school communications to parents and the community. When you pursue publicity opportunities, work with your TEALS regional manager to ensure that the finished product represents our TEALS partnership properly.

**Tokens of Appreciation**
Brainstorm some meaningful tokens of appreciation for the volunteers: for instance, a letter from the students in their class, or a framed class photo. You can give these small gifts to the volunteers at the end of the year, or during the winter holiday season.
Appendix A: Classroom Teacher PD Stages for Intro CS [Co-Teaching Model]

Classroom teachers in the Co-Teaching Model phase are required to have additional time during the day dedicated to preparing for the TEALS computer science course. Suggested activities for that time are outlined below.

Phase 0: Professional Development

*Time frame: before the start of Year 1*

Classroom teachers in the Co-Teaching Model must attend at least one program of course-specific professional development. If necessary, this can occur during the summer before the second year.

Suggested options:

- TEALS-provided classroom teacher PD over the summer (mostly online)
- UC-Berkeley Beauty and Joy of Computing summer professional development (see [http://bjc.berkeley.edu/](http://bjc.berkeley.edu/))

Phase 1: Curriculum and Content Mastery

*Time frame: Year 1, first semester*

During this phase, the TEALS volunteers primarily lead the class. The classroom teacher keeps pace with material covered in class, follows along with lectures, completes assignments, projects and assessments, and asks questions of the volunteers when required. The volunteers may point the teacher to additional resources to fill in gaps in knowledge and will provide opportunities for the classroom teacher to assist with classroom demos by controlling the demo computer while the volunteer narrates. The classroom teacher takes a lead role in classroom management, provides feedback to the volunteers regarding pedagogy, and helps volunteers explain concepts when students are confused.

Suggested uses of prep time:

- Complete assignments, projects, and assessments
- Review additional resources (obtained from volunteers) to fill in gaps in content knowledge

Move to the next phase when:

- Classroom teacher has self-reported on successful completion of all major assignments, projects, and assessments
- Classroom teacher is leading in-class demos or review sessions at least once per week
- Volunteers agree that classroom teacher has mastery of content and curriculum
Phase 2: Lab TA  
*Time frame: Year 1, second semester*

During this phase, the classroom teacher transitions into a lab TA role. At first, the classroom teacher shadows the volunteers during lab and observes their interactions with students. The classroom teacher then begins to assist students independently. By the end of this phase, the classroom teacher serves as an independent TA during all lab sessions. The volunteers will occasionally shadow the classroom teacher and/or provide technical support as necessary. The volunteers model and explain the nuances of grading code-based artifacts and provide rubrics and graded examples to the classroom teacher. The classroom teacher then begins to independently grade assignments and compare/discuss the results with the volunteers.

**Suggested uses of prep time:**
- Grade assignments
- Review upcoming assignments to prepare for supporting students

**Move to the next phase when:**
- Classroom teacher is serving as an independent TA during labs and only one volunteer needs to come in per class period, although more may choose to
- Classroom teacher is grading half of assignments, with review from volunteers.
- Volunteer and classroom teacher grading is similar
- Volunteers agree that the classroom teacher can begin transitioning to a lead teaching role

Phase 3: Part-time teaching  
*Time frame: Year 2, first semester*

During this phase, the classroom teacher begins taking on duties of formal instruction in the classroom. At the beginning of the phase, the classroom teacher might teach parts of lessons a few times per week. By the end of this phase, the classroom teacher is running entire class periods about half of the time.

**Suggested uses of prep time:**
- Plan lessons
- Grade assignments

**Move to the next phase when:**
- Classroom teacher is leading formal instruction during at least half of all lessons and is serving as lab TA on other days.
- Classroom teacher is preparing lesson plans for his or her teaching days.
- Classroom teacher is grading most assignments, with review from volunteers.
- Volunteers agree that classroom teacher has mastery of subject area
Phase 4: Independent teaching  
*Time frame: Year 2, second semester*

During this phase, the classroom teacher takes on increasing responsibilities for formal instruction in the classroom and the volunteers are transitioning to TA support only. By the end of this phase, the classroom teacher is handling all aspects of running the class independently (planning, instruction, grading) and is ready for the course to be handed off completely.

Suggested uses of prep time:

- Plan lessons
- Grade assignments

Move to course handoff – with option to go to Teaching Assistants Model or Consulting Support Model – when:

- Classroom teacher is leading formal instruction for the majority of lessons
- Classroom teacher is preparing all lesson plans
- Classroom teacher is grading all assignments
- Volunteers are only providing TA support
- Volunteers and classroom teacher agree that the classroom teacher is ready to take full control of the class moving forward
Appendix B: Classroom Teacher PD Stages AP CS A [Co-Teaching Model]

During the first two years of this partnership, classroom teachers in the Co-Teaching Model are required to have additional time during the day dedicated to preparing for the TEALS computer science course. Suggested activities for that time are outlined below.

Phase 1: Initial content mastery

Time frame: Required before start of Year 1

The classroom teacher is expected to attain mastery of the programming fundamentals and basics of Java taught in the course prior to the start of the school year so that they can begin transitioning into a lab TA role immediately when school starts. The classroom teacher may choose one of the options below to meet this requirement. Throughout the summer, the classroom teacher will also complete the first major programming project in the course and will be in regular contact with the volunteers to discuss content questions and curricular planning for the course.

Suggested options for content mastery:
- Take an introductory-level Java programming course at a local college/university
- Complete Udacity’s free online course, CS 046: Introduction to Programming

Optional professional development:
- College Board AP Workshop (this workshop does not teach AP CS A content mastery skills)

Phase complete when:
- Classroom teacher has attended one of the above options for content mastery
- Classroom teacher has self-reported successful completion of FracCalc, the first major programming project in our AP curriculum.

Phase 2: Curriculum/Content Mastery and Lab TA

Time frame: Year 1

During this phase, the classroom teacher completes assignments, projects and assessments ahead of the students in the class and asks content questions of the volunteers when required. The volunteers may point the teacher to additional resources to fill in gaps in knowledge and will provide opportunities for the classroom teacher to assist with classroom demos and review. The classroom teacher takes a lead role in classroom management, provides feedback to the volunteers regarding pedagogy, and helps volunteers explain concepts when students are confused.

Additionally, the classroom teacher begins to transition into a lab TA role. At first, the classroom teacher shadows the volunteers during lab and observes their interactions with students. The classroom teacher then begins to assist students independently. By the end of this phase, the classroom teacher is serving as an independent TA during all lab sessions. The volunteers will occasionally shadow the classroom teacher and/or provide technical support as necessary. The volunteers model and explain the nuances of grading code-based artifacts and provide rubrics and graded examples to the classroom teacher. The classroom teacher then begins to independently grade assignments and compare/discuss the results with the volunteers.

Suggested uses of prep time:
- Complete assignments, projects, and assessments ahead of the pace of the class
- Grade assignments
- Review additional resources (obtained from volunteers) to fill in gaps in content knowledge

Move to the next phase when:
- Classroom teacher has self-reported successful completion of all major assignments, projects, and assessments
- Classroom teacher is leading in-class demos or review sessions at least once per week
- Classroom teacher has scored a 4 or 5 on a practice AP exam.
• Volunteers agree that classroom teacher has mastery of content and curriculum
• Classroom teacher is serving as a full-time lab TA and only one volunteer needs to come in per class period, although more may choose to
• Classroom teacher is grading half of assignments, with review from volunteers.
• Volunteer and classroom teacher grading is similar
• Volunteers agree that the classroom teacher can begin transitioning to a lead teaching role

Phase 3: Part-time teaching

*Time frame: Year 2*

During this phase, the classroom teacher begins taking on duties of formal instruction in the classroom. At the beginning of the phase, the classroom teacher might teach parts of lessons a few times a week. By the end of this phase, the classroom teacher runs entire class periods about half of the time.

Suggested uses of prep time:

• Plan lessons
• Grade assignments

Move to the next phase when:

• Classroom teacher is leading formal instruction during at least half of all lessons and is serving as lab TA on other days.
• Classroom teacher is preparing lesson plans for his or her teaching days.
• Classroom teacher is grading most assignments, with review from volunteers
• Volunteers agree that classroom teacher has mastery of subject area

Phase 4: Independent teaching with TA-only support [optional]

*Time frame: Year 3*

During this phase, the classroom teacher takes full responsibility for formal instruction in the classroom, and the volunteers provide TA support only. The classroom teacher handles all aspects of running the class independently (planning, instruction, grading).

TA support is on a weekly, regular basis in the Teaching Assistants Model.

Teachers wanting the benefit of consulting with a technical mentor can use the Consulting Support model.
Appendix C: Sample Communications for Recruiting Volunteers

The following pages contain examples of materials you can use to reach out into your community and help us identify prospective TEALS volunteers. You will need to edit the materials to be specific to your school’s courses and volunteer needs.

Recruiting volunteers is a shared responsibility between TEALS and partner schools. We’ve found that volunteers who have a pre-existing connection to the school community are most likely to stick around for multiple years of the program.

The sample materials are:

1) Letter to parents and alumni
2) Letter to local companies
3) Letter to local leaders and interest groups

Dear parents, guardians and alums,

We have a wonderful opportunity to team up with TEALS to bring computer science courses to our students. TEALS (Technology Education and Literacy in Schools) is a grassroots program that recruits, mentors and places passionate high tech professionals into high school classes as part-time teachers. The professional brings his or her subject knowledge and will join one of our classroom teachers in a team-teaching model. TEALS provides training for both parties as well as course outlines based on successful college courses.

<School> is applying to this program for the <year> school year. If our application is successful, we will offer two courses: “Introduction to Computer Science” and “Advanced Placement Computer Science.” The introductory class is based on the award winning UC Berkeley CS10 course and is adapted specifically for high schools in conjunction with UC Berkeley. The other course will prepare students to take the College Board’s AP Computer Science A exam in May of 2017.

In order to put together a favorable application, <school name> needs to demonstrate that we can recruit volunteers from the Computer Science or Software Engineering fields to team-teach these courses with our teachers. <School name> would hold the courses 1st period (done by <time>) to permit the volunteers to get to their regular jobs.

If you or someone you know works in the Computer Science or Software Engineering field and would be willing to help us build a successful Computer Science program, please contact <school contact info>.

You can read more about TEALS on their website at http://www.tealsk12.org.

I am excited about this opportunity and look forward to hearing from many of you.

Sincerely,

<Signature>
Dear <company name or contact>,

Did you know that only 1 in 10 schools offer computer science classes in the United States? According to Code.org’s analysis of Bureau of Labor & Statistics data, with the current educational pipeline, there will be at least 1 million unfilled jobs in computing by 2020.

My name is <name> and I am the <position> at <school name> and I am writing to ask for your help in bringing computer science to our high school.

We need your help because:

1.) <Company name> is a leader in the tech industry for our local community.
2.) Both <company name> and <school name> have an interest in making computer science opportunities available to a broader and more diverse pool of students.
3.) We have an opportunity for <company name> to make an immediate impact, resulting in computer science being offered at <school name> this school year.

<School name> is applying to partner with TEALS (Technology Education and Literacy in Schools), a grassroots program incubated by Microsoft’s YouthSpark initiative. TEALS recruits, trains, mentors, and places passionate volunteers from the tech industry into high school classes to train and team-teach with one of our classroom teachers. More information about TEALS is available on their website at http://www.tealsk12.org.

To strengthen our application, <school name> needs to demonstrate that we can help recruit volunteers from the Computer Science or Software Engineering fields to participate in the program with our teachers.

A single volunteer from your company would go a long way to ensuring our partnership with TEALS.

I am very excited about this opportunity and would love to discuss it with you at your earliest convenience. If you prefer, I can put you in touch with the TEALS regional manager that is working with our school to speak with you about the specifics of the program and how best to share this message with your employees.

Thank you for your time and I look forward to speaking with you in the future,

<Signature>

Dear <contact name>,

My name is <name> and I am the <position> at <school name>, where we are always looking for new opportunities to enrich our students.

<School Name> has the opportunity to partner with TEALS (Technology Education and Literacy in Schools), a program hosted by Microsoft YouthSpark, to bring computer science courses to our school. This is an exciting opportunity to open new pathways and career opportunities for our students.

According to Code.org’s analysis of Bureau of Labor & Statistics data, there will be at least 1 million unfilled jobs in computing by 2020. One of the largest reasons for this deficit is that schools, including ours, cannot find teachers with a sufficient background to teach computer science. As a result, fewer than 25% of schools in the United States offer computer science classes.

The TEALS program recruits, trains, mentors, and places passionate volunteers from the tech industry into high school classes to train and team-teach with one of our classroom teachers. In the past 6 years, they have brought computer science classes to hundreds of schools in 19 states.

To strengthen our application, we need to demonstrate that we can help recruit volunteers from the Computer Science or Software Engineering fields to participate in the program with our teachers.

We need your help as a community leader to spread the word to businesses, organizations, and other individuals with strong ties to computer science. Particularly, we are looking for local professionals in the Computer Science or Software Engineering field who might serve as volunteer teachers.

In 2014, California Senator Steve Knight shared the following message on his website and through the local Chamber of Commerce. This resulted in a tremendous influx of volunteers, allowing 32 schools to add computer science to their course offerings: http://www.signalscv.com/archives/128127/

Thank you for your time. If you have any questions or wish to discuss this further please do not hesitate to contact me or TEALS directly through the contact form on their website at tealsk12.org.

Sincerely,

<Signature>