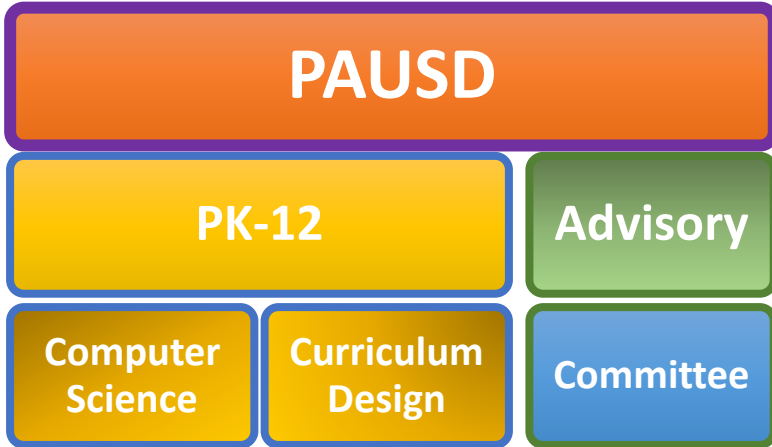


# PAUSD

## Palo Alto Unified School District PK-12 Computer Science Curriculum Design Advisory Committee

PAUSD PK-12 CS CDAC, 2017-18

<https://www.pausd.org/committees-task-forces/pk-12-computer-science-curriculum-design-advisory-committee>



Meeting Info: Monday **Feb 12**; 4:15 pm – **6:15 pm**; Room SDC

PAUSD District Office; 25 Churchill Avenue, Palo Alto, CA 94306

## Agenda and Notes

Meeting Attendants:

<i>NAME</i>	<i>Level</i>	<i>PRESENT</i>
Antink, Suz (PAUSD Staff)	3/Float	<b>YES</b>
Bramlett, Katie (Teacher)	1	<b>YES</b>
Bumbacher, Engin (Adjunct Community Representative)	2	<b>NO</b>
Chang, Eileen (Teacher)	2	<b>NO</b>
Chen, Janice (Assistant Principal)	3	<b>YES</b>
Ferrante, Marissa (Teacher)	2	<b>YES</b>
Friebel, Will (Teacher)	3	<b>NO</b>
Gantley, Amanda (Teacher)	1	<b>NO</b>
Garrison, Emily (PAUSD Staff)	1/Float	<b>YES</b>
Gilbert, Teri (Teacher)	2	<b>YES</b>
Grover, Shuchi (Community Representative)	2	<b>NO</b>
Guibas, John (High School Student)	3	<b>NO</b>
Hexsel, Jess (Teacher)	3	<b>NO</b>
Hickey, Lisa (Principal)	2	<b>YES</b>
Jacobowsky, Tom (Principal)	1	<b>NO</b>
Jou, Shirley (Teacher)	1	<b>NO</b>

Kandell, Jaqui (Teacher)	2	YES
Kellison, Tricia (Community Representative)	2/3	YES
Kolhatkar, Smita (Community Representative)	1	NO
Kuszmaul, Chris (Teacher)	3	NO
Li, Nina (Middle School Student)	2	YES
McManus-Coburn, Colleen (Teacher)	1	YES
Mobin, Arjan (High School Student)	3	NO
Narayan, Avani (Adjunct Community Representative)	3	NO
Ng, Erica (Teacher)	2	NO
Ofek, Sharon (PAUSD Staff)	2/Float	YES
Paley, Josh (Teacher)	3	YES
Parulekar, Mallika (High School Student)	3	YES
Pierce, Sarah (Teacher)	2	YES
Pound, Sue (Teacher)	2	YES
Proctor, Chris (Adjunct Community Representative)	3	NO
Rayner, Max (Parent)	2	YES
Rosenblatt, David (Teacher)	2	YES
Secor, Torin (Middle School Student)	2	YES
Selwyn, Robbie (High School Student)	3	YES
Stoneburner, Cara (Parent)	3	YES
Vroemen, Max (Middle School Student)	2	YES
Werbrouck, Paolo (Parent)	2	NO

Committee Norms

1. Begin and end on time.
2. Assume that all of us have the best interests of students at the center of our work.  
Recognize that we are dealing with competing values: inclusion—transparency (show what we did and how we did it)—discretion—urgency & efficiency
3. Seek to understand.
4. Listen actively and participate in the meeting (inclusion); make room for others to participate. [Watch your air time; hands are helpful—keep your remarks to 3 minutes.]
5. Disagree respectfully.
6. Avoid side conversations.
7. Maintain a healthy humor. Celebrate and laugh together.

\*\*\*\*\*

**Light dinner is provided.**

*AGENDA*

Item #	Timing	Person Responsible	Topic	Notes	
1	4:15-4:25	Suz	Welcome	Please gather food	
2	4:25-4:30	Suz	Introductions		
3	4:30-4:45	Suz	Progress Report (info sent in January and updates)	<ul style="list-style-type: none"> <li>• Elementary</li> <li>• Middle</li> <li>• High</li> <li>• Grad Req't</li> </ul>	
4	4:50—5:45	Grade Level Groups (Suz previews)	Break out into grade-level discussion groups <b>See notes in bold among the stems below.</b>	Discussion topics below this agenda <ul style="list-style-type: none"> <li>• Elementary</li> <li>• Middle</li> <li>• High</li> </ul>	
5	5:45—6:00	Suz	Report out	<ul style="list-style-type: none"> <li>• Elementary</li> <li>• Middle</li> <li>• High</li> </ul>	
REPORT OUT Notes	Elementary <ul style="list-style-type: none"> <li>• Coaches: Colleen for K-2; some other ideas for lessons in 3-4</li> <li>• Outcomes: spectra model--how will that work--survey afterwards--how is it going? --do you like it? Take notes and film--if it takes too long, not a good fit...</li> <li>• Set up Learning Targets and use those targets for the measure.</li> <li>• Spectra art model in the budget...</li> <li>• Spectra model as a rec for the BOE--an hour every other week or an hour per week--how many lessons/hours we're talking about</li> <li>• Need someone to help organize it--logistics? Inventory? Charged?</li> <li>• Training needed by Spectra teachers? (wonder workshop folks?)</li> <li>• Scheduling: k-2 as a center--maybe without too much teacher leadership? 3-4 an hour--Coding lesson versus an exploration... Pairs?</li> </ul>		Middle <ul style="list-style-type: none"> <li>• Is wheel the best place? Is three-weeks enough? (12-days--very intense) Is this the right material? Engaged or overwhelmed? ...and previous experience with CS... how does it all work out? (Feel they could pilot the plan--beginning March 15, and one April 16? And Run through the curriculum a couple of times this year) Would need the "kit" ready for each school.</li> <li>• Set up Learning Targets and use those targets for the measure.</li> <li>• Appropriate for the time of year... Maturing throughout the year. "Piloting the pilot..."</li> <li>• Collecting data--looking at the success of the project; survey: interesting and challenging--other ideas of what to do; formative assessment; how can you collect the evidence of the whole project--Reflection video--tutorial... Video of a student actually producing something.</li> </ul>		High <ul style="list-style-type: none"> <li>• Objectives</li> <li>• Looking at courses--</li> <li>• In a more structured way--create our Learning Targets... and measure the programs against that</li> <li>• Where would the CS req't fit?</li> <li>• CS Department?</li> <li>• (include in the budget)</li> <li>•</li> </ul>

6	6:00—6:15	Suz gathers information	Our Board Recommendations—progress?	<ul style="list-style-type: none"> <li>• Grad Req't</li> <li>• Elementary</li> <li>• Middle</li> <li>• High</li> </ul>
BOE Possible RECOMMENDATIONS	<p>Grad Req't</p> <ul style="list-style-type: none"> <li>• Semester course minimum for all students</li> <li>• Students may meet the requirement with a variety of coursework.</li> <li>• Will the BOE review all of the graduation requirements before adding a new one?</li> </ul>	<p>Elementary</p> <ul style="list-style-type: none"> <li>• Spectra art model (3 and 4)--very structured--8 hours; CS teacher is at multiple sites throughout the year; go to a school for x weeks...</li> <li>• K-2 integrated centers with limited screen time</li> <li>• 5th grade is not included--scheduling problem--could use Dash/Dot in unstructured time. (use a Cart...)</li> <li>•</li> </ul>	<p>Middle</p> <ul style="list-style-type: none"> <li>• Kit at every site for wheel</li> <li>• Release time for the three wheel teachers--so they can stay aligned.</li> <li>• GUTS--it was good, workable for science--but you would have to pay for something you already have...</li> <li>•</li> </ul>	<p>High</p> <ul style="list-style-type: none"> <li>• HR questions??</li> <li>• Ideas?</li> <li>• Brainstorming???</li> </ul>

### Elementary Breakout Stems:

1. Identify which exploratory devices have been ordered and when we can expect them.
  - **All items are in**
2. Identify the coach who can bring the exploratory devices to the classrooms at Briones, Hoover, and Palo Verde.
  - **Cara, currently on leave - can we do this?**
  - **Discussion about tech leads - not able to support this, teachers feeling very overwhelmed**
  - **Wonder workshop people - contact them and ask**
  - **KCI - can we reach out and see if we can find someone?**
    - **Danielle Martin**
  - **Colleen can do K-2**
    - **Mouse, Osmo**
    - **Colleen is available to taking 3 Fridays (one day at each test site)**
      - **Who is paying from the sub days**
  - **Other possible people willing to be a test teacher**
    - **Jenn Aza**
    - **Kristi Van (Sphero)**
    - **Elsa Chen - willing to do in her classroom. We can try to get her to teach in other rooms at her site.**
  - **Specialists - no classes, would not need subs - these need to be the people to help!**
    - **Heather Cleland**
    - **Sarah Patanroi**
3. Identify the elementary teachers at the sites and set up a schedule for the exploration.

- **See above**
4. Identify the outcomes of the exploration:
    - a. What are we trying to discover?
      - **How the “Spectra” model would work for CS in elementary**
    - b. How will we collect the data?
      - **We need to have one extra person who films and takes notes about the events**
      - **Classroom teacher survey after the event**
      - **Student survey - how did the experience go**
      - **CS teacher survey**
    - c. How/what will we make recommendations to the BOE?
      - **Smaller “Spectra model”**
      - **Carts with all robots, iPads, etc. that can be moved from room to room**
        - **Will need specific iPad minis for the kits**
      - **We need someone in charge of the logistics**
        - **Like a Foss kit**
        - **Requires lots of organization time**
        - **Organize boxes by colored tape, and iPad cases**
          - **Dash, dot, iPad mini,**
  5. **Other notes / next steps**
    - **We are missing one large cardboard box with the Dash & Dot cards and instruction manual--just in Suz’ office**
    - **We also wonder how much training our “CS Spectra” teacher(s) will need to do this work**
    - **We need to build learning targets connected to each activity / robot, then survey info needs to be related to is the kids met the targets yes/no**
  6. **Scheduling - Colleen**
    - **Run as a center, 30 minutes**
    - **Willing to try as many K-2 classes as possible**
  7. **Scheduling - 3rd and 4th grade**
    - **45 - 1 hour to make a full lesson with dash & dot**
    - **We want to focus on teaching coding as opposed to just exploration**
    - **Need to work with the classroom teachers to pair high kids with high kids and pass them the higher level cards**
  8. **Scheduling - Suz, Emily video and take notes?**

### **Middle School Breakout Stems: Regarding the pilot of the aligned Wheel CS Unit**

1. Share the delivery dates of the devices.
2. Schedule the pilot of the aligned Wheel CS Unit for the sites—using the plan from the MS CS Teachers meeting on Dec 18, 2017.
3. Identify the outcome of the pilot:
  - a. What are we trying to discover?

#### **Discussion notes**

- **Is Wheel the best place?**
- **Is the 3-week focus sufficient to develop student skills**
- **Is this the right material to introduce at this grade in this format**
- **Were they engaged? Or overwhelmed?**
- **How can we differentiate for all students/different levels**

- b. How will we collect the data?

#### **Discussion ideas**

- **Project - were they successful?**
- **Survey -for students - interesting? Challenging? What would you like to see in the curriculum?**

- **Observations - formative assessment**
  - **Learning targets - what are the objectives - and base surveys off those- were the learning targets met?**
- c. How/what will we make recommendations to the BOE?

**Report out on success/tweaks and troubleshooting**

**HS Breakout Stems: Regarding a minimal HS Graduation Course**

1. PAUSD Leadership (1) thanks everyone for their input as we sort through appropriate offerings, and (2) has determined that an existing, well-experienced course is preferable, at this time, to a PAUSD-designed course offering.
2. Objectives of such a course should be defined—Our task is to refine and validate the outcomes.
  - a. Proposed Objectives of a HS One-Semester Computer Science Course:
    - i. The course should be accessible to *all* students, regardless of their mathematical background.
    - ii. The course should motivate and engage students in solving problems that require the use of a computer.
    - iii. The course should serve as a starting point for students interested in AP CSP or FOOP, and perhaps Robotics, Engineering, or STEM courses.
    - iv. The course should include all of the Seven Big Ideas of Computer Science, in the AP Board’s order of Creativity, Abstraction, Data & Information, Algorithms, Programming, the Internet, and Global Impact.
    - v. The course should give the student a fundamental experience of the thought processes needed by professionals when creating software to solve problems.

These objectives were approved:

**Objectives of a HS One-Semester Computer Science Course:**

- i. The course should be accessible to *all* students, regardless of their mathematical background.**
- ii. The course should motivate and engage students in solving problems that require the use of a computer.**
- iii. The course should serve as a starting point for students interested in AP CSP or FOOP, and perhaps Robotics, Engineering, or STEM courses.**
- iv. The course should include all of the AP Board’s Seven Big Ideas of Computer Science: Creativity, Abstraction, Data & Information, Algorithms, Programming, the Internet, and Global Impact.**
- v. The course should give the student a fundamental experience of the thought processes needed by professionals when creating software to solve problems.**

**This question was raised: Should CS be moved back to the math department to ease credentialing problems?**

3. Possible existing courses that might meet our objectives—Our task is to choose a course, or present some course choices to the committee that would be appropriate to meet our objectives.  
If the course is year-long course, could it be taught in one-semester?  
If the course has a math requirement beyond Algebra, is it still workable? (Pros and cons...)
- a. Create a district partnership with TEALS, <https://www.tealsk12.org/schools/>
    - i. *Introduction to Computer Science* (semester-long course)
      1. Students are expected to have successfully completed Geometry
      2. CSU/UC approved A-G credit for HS students in CA
      3. To entice students: alternate title is *Intro CS: The Beauty and joy of Computing*.
      4. Snap!, Build Your Own Blocks, and an Intro to Python
    - ii. (might be advisable to also offer *Advanced Topics and Projects in Computer Science*, which is a post-AP CS course)
    - iii. Funded by Microsoft Philanthropies—have to create and win a partnership with TEALS
    - iv. TEALS offers curricula for the following CS courses: *Introduction to Computer Science* (one- or two-semester course), *AP CS A*, *AP CSP*, and *Advanced Topics and Projects in Computer Science*.
    - v. Teacher onboarding; teacher participation in TEALS Community
  - b. Exploring Computer Science <http://www.exploringcs.org/for-teachers-districts/curriculum>
    - i. Year-long course
    - ii. Units: Human-Computer Interactions; Problem-Solving; Web Design; Programming; Computing and Data Analysis; Robotics
    - iii. *Exploring Computer Science* aligns well with Career and Technical Education (CTE) pathways including Information Technology; Engineering and Design; and Arts, Media and Entertainment Technology among others. It is also conceptually and pedagogically aligned with college preparation coursework such as AP® CS Principles.
    - iv. Students are expected to have completed Algebra 1.
  - c. Computer Science Discoveries <https://studio.code.org/courses/csd>
    - i. *Computer Science Discoveries (CS Discoveries)* is an introductory computer science course that empowers students to create authentic artifacts and engage with computer science as a medium for creativity, communication, problem solving, and fun.
    - ii. The six units are *Problem Solving*, *Web Development*, *Animation and Games*, *The Design Process*, *Data and Society*, and *Physical Computing*.
    - iii. If we teach only a semester, Code.org recommends that we only complete the first three units. (However, that would not meet our likely outcomes.)
    - iv. No prerequisite is apparent.
  - d. EdHesive, online learning that really sticks! *Introduction to Computer Science* (considered a MOOC) [https://edhesive.com/courses/apcs\\_introduction](https://edhesive.com/courses/apcs_introduction)
    - i. No prerequisites
    - ii. Semester-long and year-long curriculum options
    - iii. Web-based video classes, activities and practice exercises
    - iv. Regular quizzes, projects and exams
    - v. Auto-grading, progress tracking and gradebook
    - vi. Teacher and student support
    - vii. The units are *Beginning in Computer Science*, *Number Calculations & Data*, *Making Decisions*, *Repetitions & Loops*, and *Graphics*.

- e. Others?
  - i. Mobile CSP
  - ii. Beauty and Joy of Computing
  - iii. CSP (old or rejuvenated version at Gunn/Paly)

***There are a variety of existing courses available—we may create a table to more easily contrast the possible existing programs. No course is exactly the fit we are considering for a one-semester course.***

Make a recommendation—does one stand out? ***Not yet.***

- 4. Review a CTE Pathway—note: it is possible that people who teach CS may need a CTE Credential—PAUSD staff is investigating now. ***Do we need to create a CS Department in which students may earn CTE or Elective Math credit? Is there a way to work around the CTE credentialing requirement for teachers (most of whom cannot be paid for the units earned, as they are already at 90 units)?***

Next Meeting: Monday, **Mar 26**,  
 4:15 pm to 6:15 pm; SDC (@ the District Office)  
 Light Dinner is provided

Tentative Agenda:

Meeting Schedule:

Semester 1	Semester 2
<del>Aug 28</del>	Jan 29— <i>Cancelled, but notes were sent out and posted</i>
<del>Sept 18</del>	<del>Feb 12</del>
<del>Oct 2</del>	Mar 26
<del>Oct 9</del>	Apr 9
<del>Oct 30</del>	Apr 16
<del>Nov 13</del>	Apr 30
<del>Nov 27</del>	May 14
<del>Dec 4</del>	Tentative BOE Meetings Informational: May 8 Approval: June 5