Palo Alto Unified School District

PAUSD PK-12 Computer Science Curriculum Design Advisory Committee
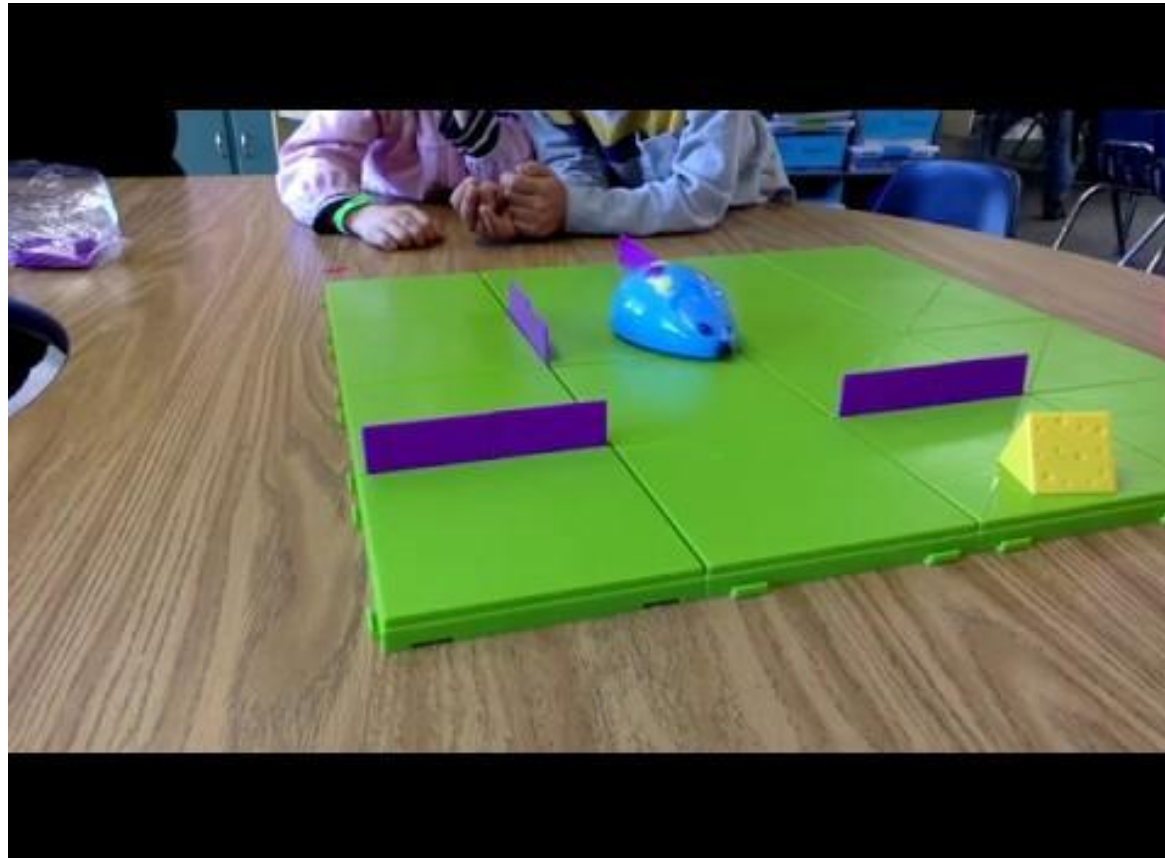
RECOMMENDATIONS

May 8, 2018

Goals Set By
PAUSD Board of Education

- Identify the Computer Science Standards for the grade bands K-2, 3-5, 6-8, and 9-12 or 9-10 and 11-12.

- Determine the appropriateness of adding Computer Science to the list of high school graduation requirements; if appropriate, determine the duration and a description of the requirement.

- Determine the need/cost of the appropriateness of creating a PAUSD Pk-12 Computer Science Department.

- Provide an approximate budget for implementation.

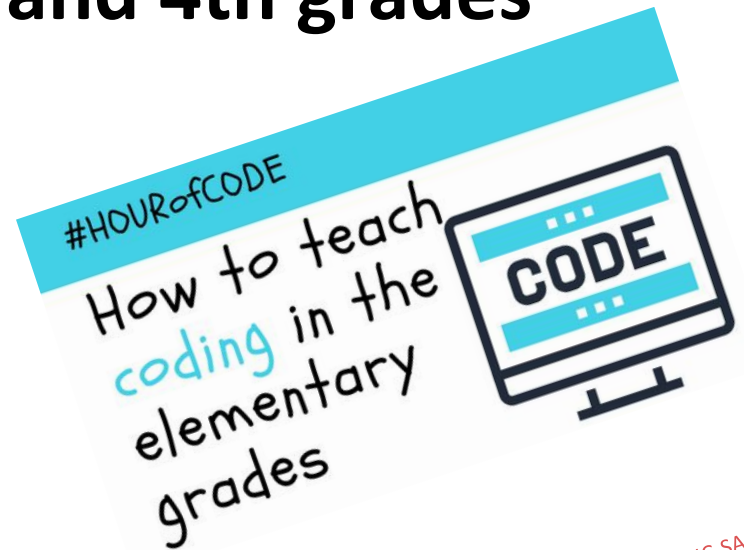# Elementary Video: PAUSD Kindergarten Code & Go Robot Mouse

Recommendations

1. Create PAUSD expectation that ***ALL STUDENTS*** study Computer Science.

2. Require at least one semester of Computer Science during high school for students to earn a PAUSD diploma.

3. Create a K-12 Computer Science Department.

Elementary CS Model: CS for **ALL**

The CS Standards for Elementary are clustered into the grade level spans of K-2 and 3-5. The following model ensures mastery of these standards by the end of 2nd and 4th grades while being fiscally mindful.

#HOURofCODE

How to teach coding in the elementary grades

CODE

Elementary CS Model: CS for **ALL**

Grade Level	Model
K/1	**Focus on offline experiences, incorporate coding skills into the existing curriculum by classroom teachers**
2	**The _CS Specialist_ TOSA will deliver 8 weeks of instruction**
3	**Incorporate coding skills into existing curriculum by classroom teachers**
4	**The _CS Specialist_ TOSA will deliver 8 weeks of instruction**
5	**Incorporate coding into existing curriculum and/or choice time**

The Elementary **CS Department**

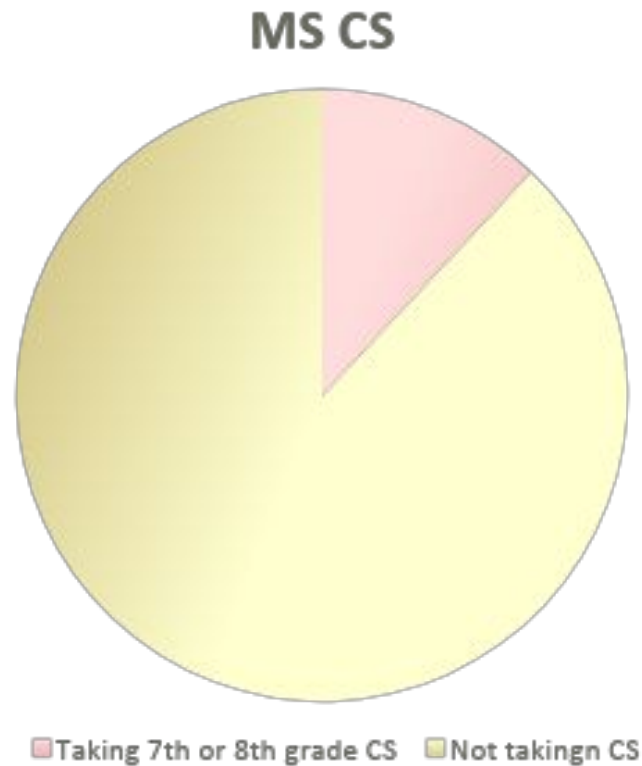## One Master CS-Specialist (TOSA /Lead Teacher)

- Certificated Elementary teacher with CS Training and/or Degree
- Brings the Elementary voice to the PAUSD CS Steering Committee
- Provides or locates PD to provide progressive CS practices at the elementary level; supports and manages the three CS-S TOSAs and their classes
- Meets other expected Lead Teacher responsibilities
- Teaches CS at least two elementary sites

Three CS-Specialists (TOSAs)

- Certificated Elementary teachers with CS Training and/or Degree
- Teaches CS at three to four sites teaching 2nd and 4th graders

The CS-Ss and many elementary teachers will require CS training.

Current Middle School Computer Science Curriculum for Students Who *Elect* CS

MS CS

Taking 7th or 8th grade CS   Not takingn CS

Middle School CS Model: CS for **ALL Students**

Grade Level	Model
6	~~**WHEEL**: three weeks of coding fundamentals and solving CS problems computationally~~
In addition:	
6, 7, and 8	Consider **integrating CS** into one, two or all three levels of the **science courses**
8	Consider **integrating CS** into the **Algebra 8** course, and **possibly the Math 8**

The Middle School **CS Department**

Three Computer Science TOSAs/Lead Teachers one @ each of the three MS Sites

- Manages the CS Curriculum, aligned across the three MS Sites
  - CS Wheel Curriculum
  - CS Electives
- Supports CS integration in Science and Math
- Brings the middle school voice to the PAUSD CS Steering Committee
- Provides or locates PD to provide progressive CS practices at the middle school level; supports and manages the site's CS teachers
- Meets other expected Lead Teacher responsibilities

The High School CS Model

Choice in meeting an **_ALL Student_** Graduation Requirement of One Semester (or 5 units) of Computer Science

To meet a One-Semester Grad Req't, students may successfully complete either choice "A" or "B":

A. New one-semester-long course:

One-Semester Graduation Requirement Computer Science Course (TBD)

an introductory course--not a prerequisite for any existing course

OR

B. __Any__ of the currently existing year-long courses

- **AP Computer Science Principles**
- **Functional & Object Oriented Prog**
- **AP CS A**
- **Web Development**
- **CS Capstone**

The High School **CS Department**

Two Computer Science Lead Teachers (CS LTs) one @ each of the two high school sites

- Manages the CS Curriculum aligned across the two HS sites
  - Updates the CS Grad Req't curriculum as needed and appropriate
  - Supports the integration of CS in other curricular areas
- Brings the high school voice to the PAUSD CS Steering Committee
- Provides or locates Professional Development to provide progressive CS practices at the high school level; supports and manages the site's CS teachers
- Meets other expected LT responsibilities

Expected Implementation COSTS

2018-19	**$1 921 516.09**
2019-20	$1 378 691.87
2020-21	$2 009 473.70
2021-22	$2 610 153.93

The PAUSD PK-12 CS CDAC Recommends

1. Computer Science for ALL Students

2. Include Computer Science in Graduation Requirements

3. Create a PAUSD PK-12 Computer Science Department

THANK YOU

Palo Alto Unified School District