



**Advanced Placement
Computer Science Principles
(AP CSP)**

&

**Computer Science Applications
(AP CSA)**



ACES



- **Mr. Arnell**
- **3rd year teaching CSP, 1st teaching CSA**
- **7th year teaching overall, previously taught Business**





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- What is the **A**cademy of **C**omputer and **E**ngineering **S**ciences?
- Projects & Problem-solving
- Links to careers
- 21st Century skills



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Prerequisites:

- Math 1 and 10th grade



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Class Structure

- Designed for those familiar with computers but little programming experience
- Lots of application in the form of projects
- Collaborative group work
- 2 major AP Tasks, interdisciplinary projects
- AP Exam at the end
- Languages: Scratch, Python, JavaScript, HTML/CSS



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- AP coursework is intense – there will be multiple assignments at any one time
- Enough time is given in class if on task 100% - Time management is crucial





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For ACES Students & Parents:

ACES Comp Sci Sequence:

Recommended – Introduction to Computer Science & Technology (ICST) taken in Middle School

- Year 1: CSE
- **Year 2: AP CSP**
- Year 3: AP CSA
- Year 4: Capstone

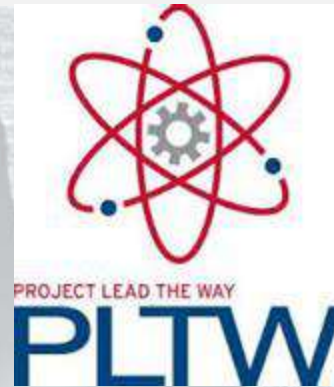


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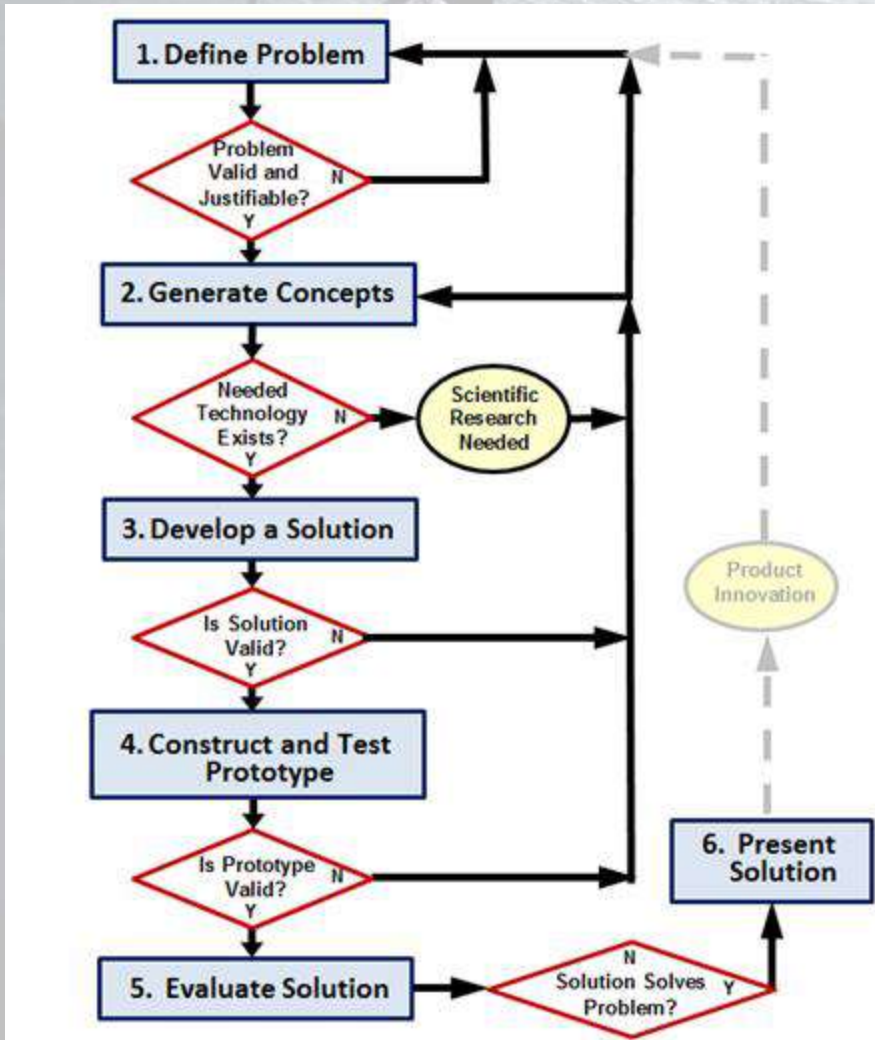
AP CSP Students learn the basics of computer science practice including:

- Documentation and portfolio on a live **website**





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- Design process skills
- Working in teams
- Meeting design challenges



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- Website building
- Python programming
- Scratch and Code.org App Lab
- Github





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- Use the **School Wires** website for info
- Use Google Classroom and Office365 links for curriculum
- For ACES: Look at the school website under Academics > Linked Learning > ACES

The background of the slide features a large, faint, and slightly blurred image of interlocking gears, symbolizing technology and engineering. The gears are rendered in a light gray color against a white background.

**Advanced Placement
Computer Science Applications
(AP CSA)**



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Prerequisites:

- Math 2 OR APCSP



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Class Structure

- Designed for students with prior programming experience or advanced math & computer skills
- Directed at those with college majors in: Computer Science, Electrical Engineering, Computer Engineering, Information Technology, Programming, Software Engineering, and Physical Sciences
- Lots of application in the form of projects
- AP Exam at the end



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Time management is crucial





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For ACES students & Parents:

ACES Comp Sci Sequence:

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- Year 1: CSE
- Year 2: AP CSP
- **Year 3: AP CSA**
- Year 4: Capstone



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AP CSA Students learn the basics of object-oriented programming (OOP)

- Focuses on Java
- Learn the basics of professional programming

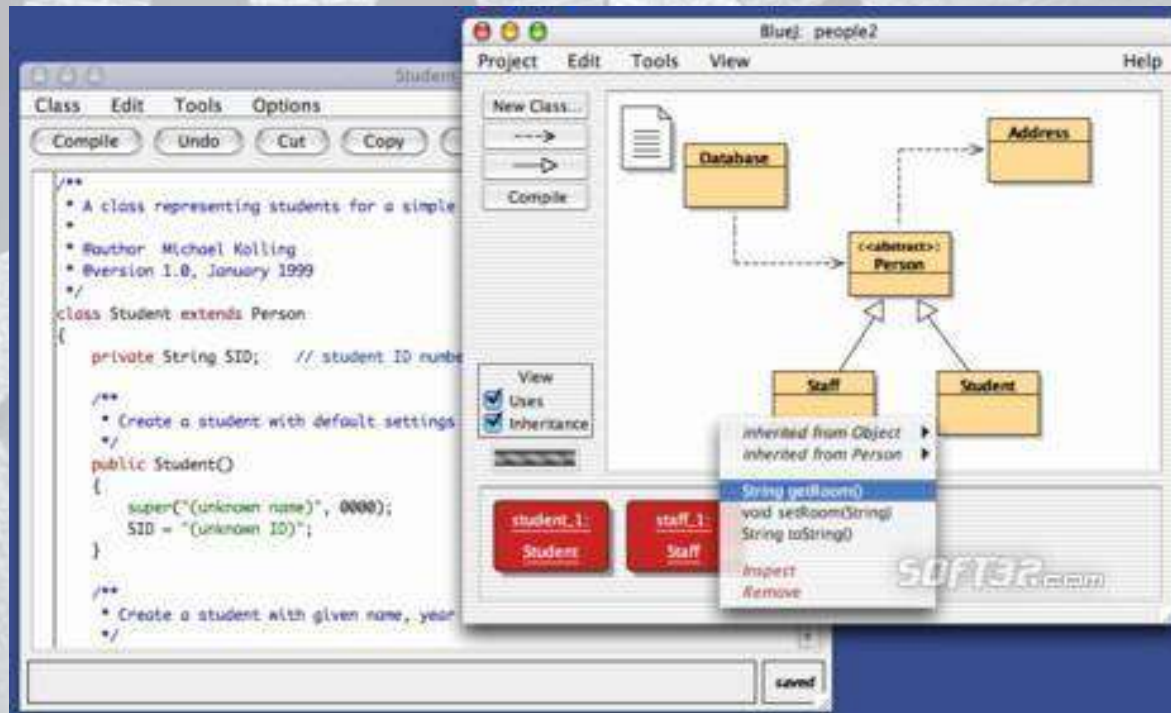




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- Utilizes the well-known BlueJ learning IDE for Java

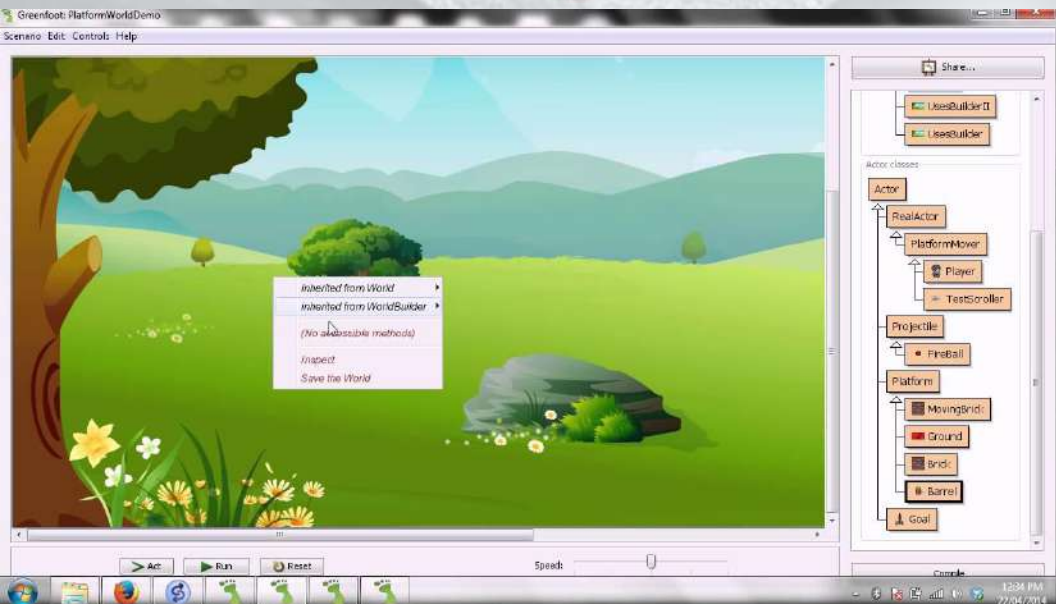




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- Learn professional OOP using a game-design methodology



- Uses Greenfoot IDE – based on the widely-used BlueJ



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- CodeHS.com for curriculum and reference – AP CS for Java



The screenshot shows the CodeHS website interface. The main content area is titled "Pyramid of Karel" and contains a Java code editor with the following code:

```
3 putBall();
4 move();
5 putBall();
6 turnLeft();
7 move();
8 putBall();
9 turnLeft();
10 move();
11 putBall();
12 turnLeft();
13 turnLeft();
14 turnLeft();
15 move();
16 turnLeft();
17 turnLeft();
18 turnLeft();
19 move();
20 putBall();
21
22
```

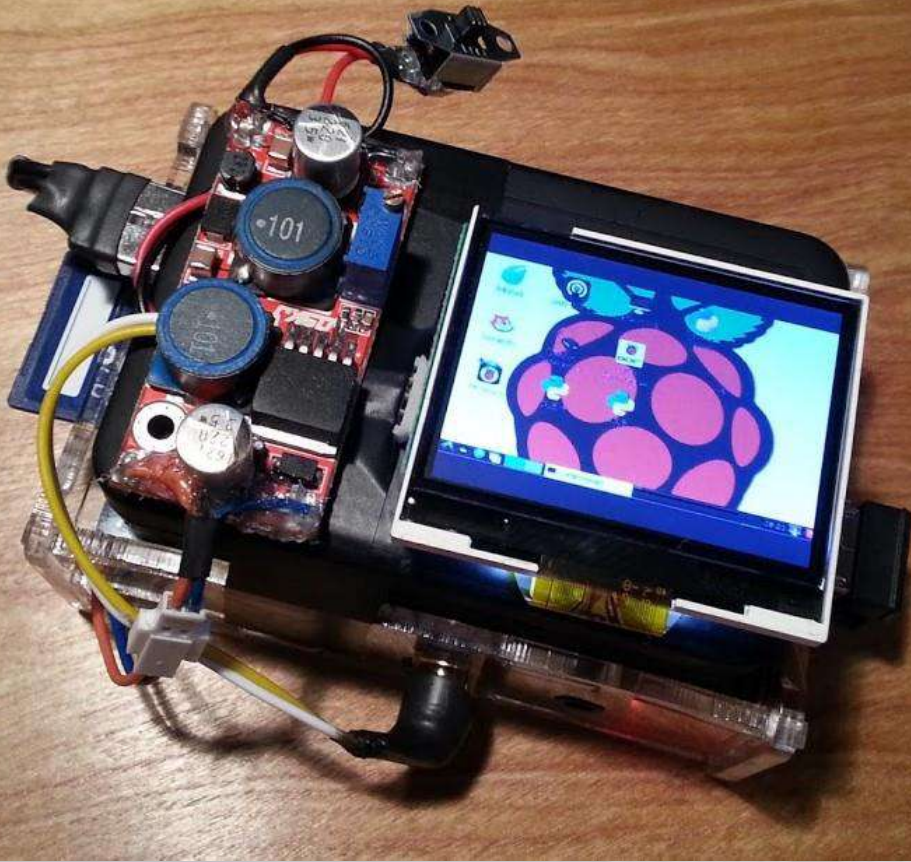
The code is displayed in a monospaced font. The line number 20 is highlighted in yellow. To the right of the code editor is a control panel with buttons for "Run Code", "Exercise", "Cheat Sheet", "Help", "Progress", and "Video". Below these buttons is a "History" section with a "Run!" button, a "Reset" button, a "Help" button, and a dropdown menu showing "World: PyramidOfKarel". A speed slider is also present, ranging from "Slow" to "Fast". The main window shows a Karel robot (a brown dog) on a grid. The robot is currently at the top right of the grid. The grid contains several yellow circles representing balls. The robot has just placed a ball at its current position. The bottom of the interface shows a "Result World" and "Karel's Commands" section.



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- Dabble in Raspberry PI projects
- Program a PI in Java





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