CAMAS SCHOOL DISTRICT
A TRADITION OF CARING AND QUALITY

Camas High School
Robotics Program

What is the

Robotics Engineering

Program of Study
at CHS and CSD?

TEAM MEAN MACHINE

(Very) short answer: Stealth Coding Training

Ron Wright

Carl Perkins
SUPPLEMENTAL
Grants

CEF
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What is the Robotics Engineering Program of Study at CHS and CSD?

Text Answer::

Camas School District:

A highly engaging first grade through twelfth grade project-based problem-solving curriculum supporting CCSS and NGSS, teaching **all students** that robots are everywhere around them and under their control, and that **coding is fun and easy**.

Camas High School:

A ninth grade through twelfth grade project-based problem-solving curriculum supporting CCSS and NGSS using robotics and programming to teach those **interested students** engineering, computer science and robotics **fundamentals**.

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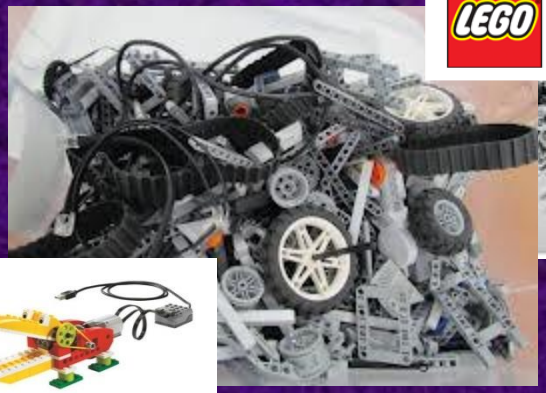
Robotics Engineering Program

Start with:



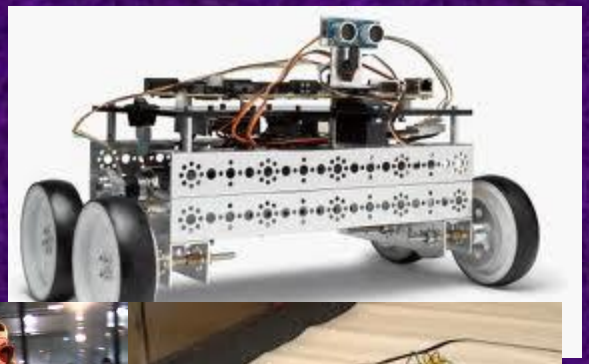
LEGO mindstorms education EV3

Designing, building and programming robots

Sign up at your school

Use your knowledge and robotics and coding to solve new problems

Work with:



http://chs.camas.wednet.edu/robotics/

Finals !!

Why do we have a Robotics Engineering Program of Study at CHS and CSD?

CAMAS SCHOOL DISTRICT
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136,000 more engineers in USA by 2022

429,000 more school teachers

1,733,000 more healthcare workers

1,102,000 more food prep and related services workers

1,095,000 more sales and related occupations workers

1,534,000 more office and administrative support workers

-168,000 FEWER data entry, typists, computer operators

651,000 more computer workers – developers, analysts, etc.

Jobs with most growth in ten years link

Engineering Median Salary link

Jobs in USA link

Short Answer::
… Coding …
Another necessary skill in our kids' future.

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The following are support slides only – not shown at Staff meeting January 9th … unless absolutely needed to help answer a specific question.

Elementary Schools: 2013/14 Pilot

Classroom Program

- November thru March*
- Each elementary school
  - At least at two different grade bands
  - Robotics and coding within a Common Core standard
  - 1st, 2nd & 3rd grades: LEGO *WeDo* hardware and software
  - 4th & 5th grades: LEGO *EV3* software with prebuilt robot base models to which the kids add "arms" to solve problems

Robotics Club

- March thru May (approx. 6 weeks)
- Each elementary school
  - Two or more divisions: LEGO *WeDo* and LEGO *EV3*
  - We will divide up the traveling kits* – two per school for club use.
- Culminate in a district-wide competition hosted at CHS

*Ron Wright will be assisting all of the interested elementary teachers with one "traveling kit" of 12 LEGO *EV3* robots and one "traveling kit" of 12 LEGO *WeDo* robots with laptops. (Purchased via CEF grant.)

Secondary Schools: 2013/14 Pilot

Camas HS

- Class: Robotics and programing (2 sections)
  - Using (1) LEGO EV3 robots, (2) Tetrix, and (3) VEX robots
  - Staff: Kelly Williams & Ron Wright
  - Material purchased with CTE and Perkins money
- Class: AP Computer Science
  - Staff: Ron Wright
  - Materials purchased with CTE money

Liberty MS

- Class: Robotics and programing
  - Using (1) LEGO *EV3* robots; and (2) *Scratch* programming language (free)
  - Staff: Skyler Gillispie
- After school LEGO FLL robotics club for both Skyridge and Liberty students
  - Staff: Mistalyn Batten
- Materials purchased with CEF grant

Skyridge MS & Hayes Freedom HS

- No programs starting yet / no staff identified … interested?

Courses at CHS (when REPoS fully implemented)

Robotics 1A and 1B – open to anyone at grade level. Intro to robotics and coding using EV3 materials. 1A preReq to 1B. 90 hours each. Course available at middle school level.

AP Computer Science Principles – preReq sophomore+ standing. Intro to problem solving using computer-related technologies. 180 hours. Prep for new AP test in applied tech.

Robotics 2 – preReq 1B. Using Tetrix, VEX, MATE, RobotC programming language, physics and raw materials to work in teams to prepare for competitions. 180 hours.

AP Computer Science – preReq in or passed Algebra 2, or completed Robotics 2. Learn Java programming language prepping for AP test. 180 hours.

Robotics/Coding Projects – preReq APCS or Robotics 2. 180 hours, may be repeated for credit. Three identified options, all leading to possible internships:

coding in C or Java apps or other language for local need
robotics maintenance/repair projects
robotics ME, EE or CS applications

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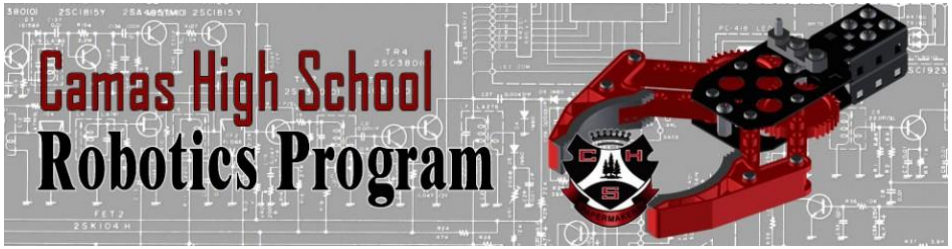
Robotics/Engineering Magnet – four-year-long robotics themed course of study integrating the student's English (180 hours/yr), Science (180 hours/yr) , Health/PE (90 hours/yr), and Robotics (90 hours/yr) courses into a three-period block, leaving room in their schedule for Math, Social Studies and one elective each semester.

Links:



- WeDo (1st, 2nd, 3rd)
  - overview video
- EV3 (4th – 9th)
  - EV3 intro video in case you missed my demo
- Tetrix (9th – 12th)
  - Tetrix overview video
  - FIRST Tech Challenge competition website
- VEX (10th – 12th)
  - Cumbersome text pdf overview in case you missed my demo
- Scratch (1st – 5th)
  - Download software from MIT – free, easy, educational, and fun
- MATE (10th - 12th)
  - Open ROV Project submersible remote operated vehicles
  - MATE competition website