Information Technology and Digital Media Pathway

Oakland Unity High School

Presented by William Nee, David Reynolds

Presented to Measure N Visiting Team

November 13, 2019

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Mission

Information Technology and Digital Media Pathway

"Our students have spent so many years behind: behind in English, behind in math. Programming could be the first language they learn where they show up for a college class and know more than their peers."

— Nathan Castro, ECS9 teacher

Feedback: "What does it mean to be a pathway student?"

Being a pathway student means understanding the role technology will play in their personal and professional lives, and leveraging Unity's diverse resources to achieve high-quality employment in the modern information economy, either directly after graduation or by continuing on to higher education.

Mission

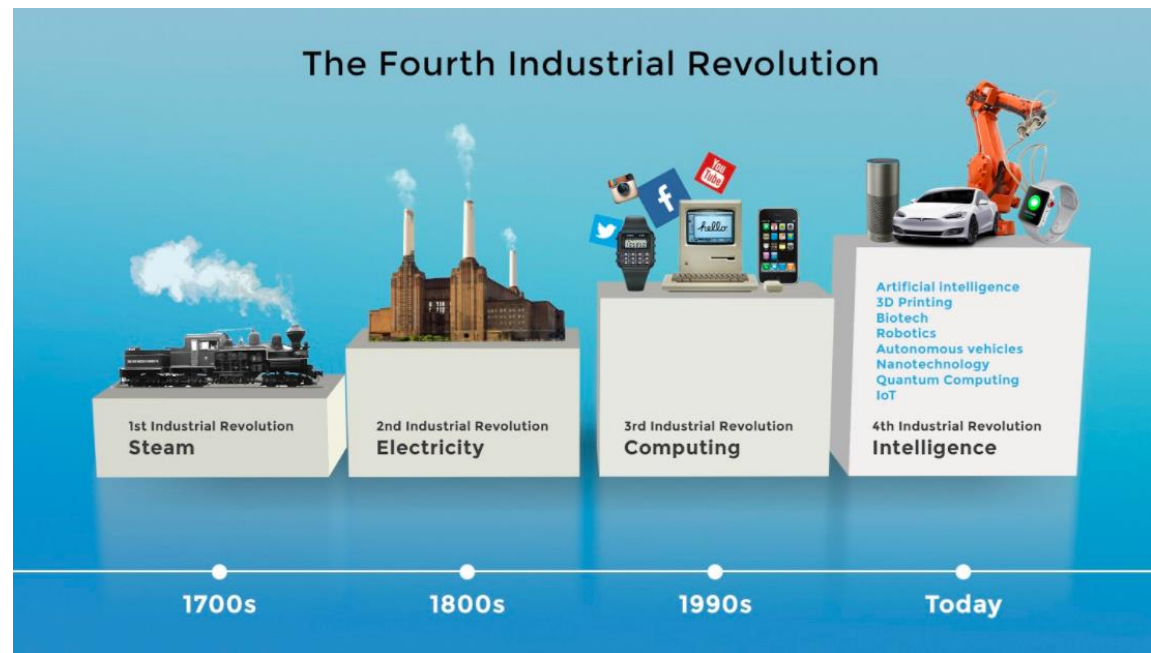Information Technology and Digital Media Pathway

Primary: Information and Communications Technologies

Secondary: Arts & Media

Goal: Every Unity student engages in four-year Pathway sequence from induction to graduation.

293 Students Served — up from 180 in '18-19!

The Fourth Industrial Revolution

1st Industrial Revolution
Steam

2nd Industrial Revolution
Electricity

3rd Industrial Revolution
Computing

4th Industrial Revolution
Intelligence

Artificial Intelligence
3D Printing
Biotech
Robotics
Autonomous vehicles
Nanotechnology
Quantum Computing
IoT

1700s   1800s   1990s   Today

Mission

Information Technology and Digital Media Pathway

Students will…

- **Think** like programmers through algorithm development, problem solving, and coding within the context of problems that are relevant to their lives.
- **Explore** diverse topics in CS such as programming and interface design, the capabilities/limitations of computers, and the ethical issues created by technological advances
- **Apply** their knowledge hands-on to topics such as robotics, hardware repair, coding, and interface design, through rich learning experiences with real-world career applications.
- **Prepare** for a career in the digital economy with technical knowledge and professional skills.
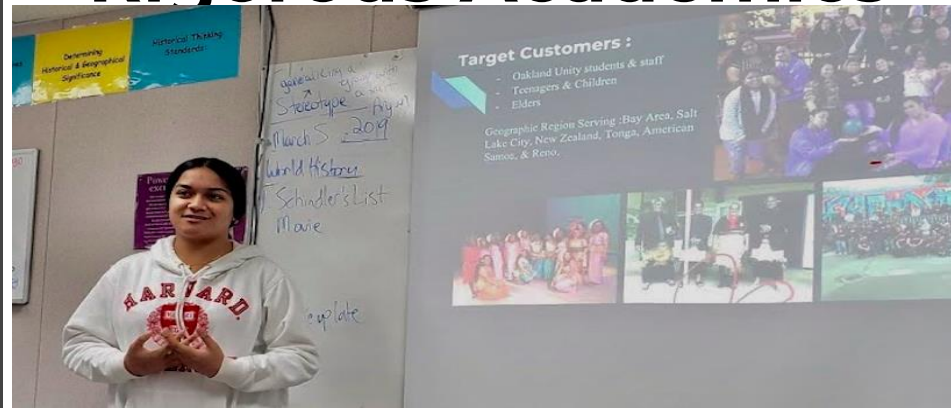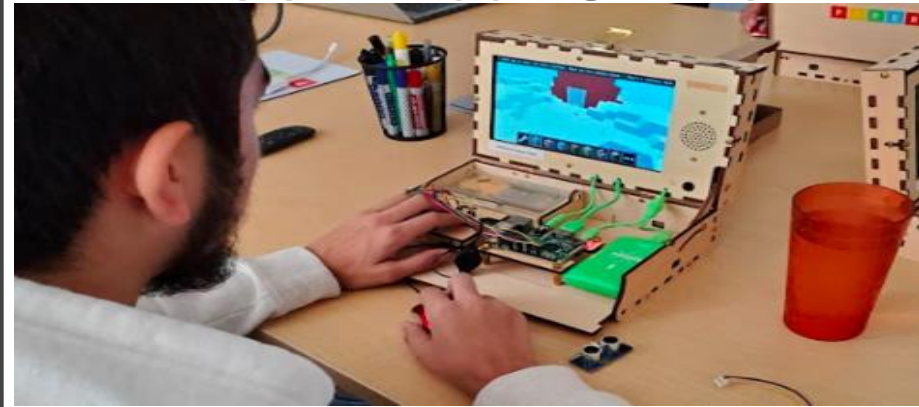
Vision

OAKLAND UNIFIED
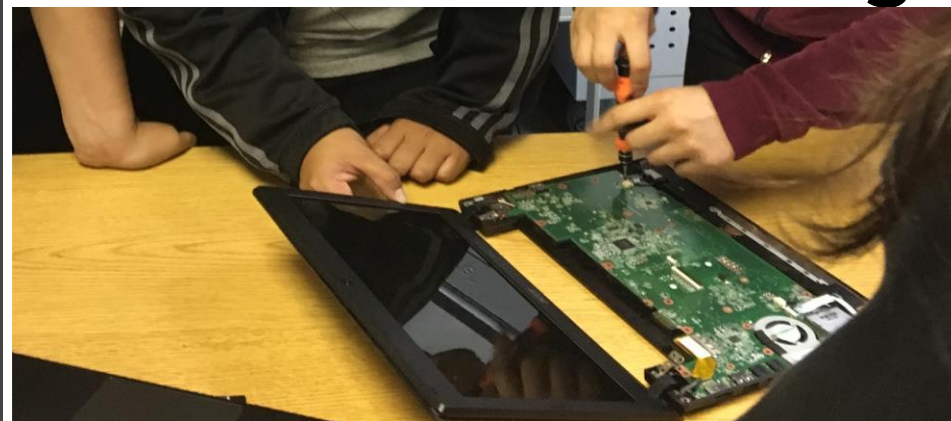SCHOOL DISTRICT
Community Schools, Thriving Students

Rigorous Academics

Technical Skills

Work-based Learning

Personalized Support

Updates & Response to Feedback from 2018-2019:

Implement full Pathway course sequence	• Pathway courses at all grade levels • Concentrators (APCS, Digital Media) • Capstones (Info Tech, Hon Digital Media)
Deeper inquiry into root causes of student attrition	• Randy Menjivar's Boys' and Girls' groups • COST and Wellness teams support 50% of students
Implement integrated projects	• Tech Fair 2020 implements school wide PBL to encourage student innovation.
Collaboration with industry professionals	• First advisory board meeting • Continuation of guest lecturer series from '18-19
Implement full WBL continuum	• Unity Tech • Student Store • Learning Through Internship course

Updates & Response to Feedback

Development & Integration of Full CTE Course Sequence

CURRENT
- 2019-2020 is first year of Pathway with courses at each grade level.
- First cohort of students to take ECS enter capstone courses in '20-21 school year.

Four-Year Course Progression

Freshman Year	Sophomore Year	Junior Year (Concentrator Course)	Senior Year (Capstone Course)

Exploring Computer Science 9 → Exploring Computer Science 10

AP Computer Science → Intro to Information Technology *(UC a-g, CompTIA A+)*

Digital Media and Design → Honors Digital Media Art

Updates & Response to Feedback

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Feedback: Need to harmonize IT and Design tracks within Pathway

Adjustment to master schedule below will allow all students experience with IT and Digital Design

Four-Year Course Progression

Freshman Year

Sophomore Year

Junior Year
(Concentrator Course)

Senior Year
(Capstone Course)

Exploring Computer Science → AP Computer Science → Digital Media and Design

Intro to Information Technology
(UC a-g, CompTIA A+)

Honors Digital Media Art

Deeper Inquiry into Causes of Student Attrition

- Partnership with Randy Menjivar (M.Psych) supporting students in processing and overcoming trauma.
- Randy has partnered with Mario Rivas (PhD-Psych) of Merritt College to introduce students to the study of applied psychology.

Updates & Response to Feedback

Feedback: Need stronger push toward career readiness

Response:
Ms Kelber, our college and career counselor is currently leading our first year of Learning Through Internship course.

Goal for '20-21 is to develop our portfolio of tech-themed internships with industry partners.

Work-based learning — Unity Tech Club

Updates

Implementation of Integrated Projects

Four team members attended High Tech High's PBL Leadership Academy in San Diego.

PBL team is spearheading Tech Fair 2020 with focus on innovations/apps that benefit the community.

Tech Fair 2020 will take place March 25th and feature industry partner judges bidding virtual seed money on project ideas.

English 10 and ECS10 participating in AI4ALL's Open Learning initiative (1 of 9 partner schools nationally)

Tech Fair 2020

- **Emphasis on Problem-Solving** — benefits for
  - OUHS
  - Oakland
  - America
  - Earth

- **Variety of Formats** — students encouraged to let their creativity flow
  - Physical projects
  - Apps
  - Business proposals
  - Art (physical or performance)
  - Protest/Advocacy

- **Focus on Entrepreneurship** — developing projects as a team with differentiated roles

Stages of Project Development

January 24 Shark Tank 1	February 7 Shark Tank 2	March 13 Final Check-in	March 25 Tech Fair!

Ideation & Pitching

Assessment of opportunities

Development of pilot ideas

Product Development

Organizing team roles

Timeline development

Creation of Project

Final Touches & Troubleshooting

Making final adjustments

User testing with peers

Tech Fair!

Presentation of Projects

Judging and Winners

PBL: Arc of Adult Learning

- Pathway team attending High Tech High's PBL Leadership Academy
- 2 hours of protected time per month for whole-staff development and small-group planning time on intercurricular initiatives

November	December	January	February	March
Introduction to PBL & Tech Fair 2020	**Intercurricular Connections**	**Differentiation in PBL**	**Expectations and adjustments**	**Tech Fair!**
Task and Sequence Overview	Integration of project skills into curriculum	Supports for varying roles and skills	Interim data and observation review	Planning to support student presentations
"Yes, and..." sessions	Small-group planning time	Small-group planning time	Rubrics and norming	Final logistics
Backwards Planning			Hosting HTH on the Road PD: Focus on Student Exhibitions	

Updates

Feedback: Need deeper collaboration between academic and pathway courses.

Response: PBL team (2 academic teachers, 2 pathway teachers) will implement the "4 invite 4" strategy: use Tech Fair 2020 as a 'recruitment opportunity' to build buy-in amongst other staff members.

Goal for 2021: 8 teachers infuse project-based learning into their curriculum to support Tech Fair 2021.

Updates & Response to Feedback

Feedback: Need to ensure access to career opportunities post-graduation.

Response:
Our LTI course is in its first year, and will build capacity as it grows.

Career Fair (2021) will showcase students' career preparation, build visibility amongst students, and connect them with our industry partners.

Updates & Response to Feedback

Collaboration of Industry Partners

- Robust (and growing!) network of industry contacts, guest speakers, workshops, and field trips to enrich students' experiences and exposure to career opportunities.
  - Piper Computers
  - CodeCombat
  - IGNITE Worldwide
  - AI4All
  - 1st Pathway Board Call

Goals for '20-21

To Address…
- Student Awareness and Engagement
  - Add **Pathway Orientation Session** to Summer Bridge
  - All juniors build **Career Portfolio Website** in Digital Media Design course.
  - Host **Career Fair** with booths from industry partners and presentations of student work.
  - Build **portfolio of partnerships** for pre-career experience in technology (internship, job shadow, etc)
- Staff Awareness and Engagement
  - **Pre-year PD** dedicated to principles and implementation of Linked Learning
  - **Linked Learning Task Force** led by Career Counselor to integrate LL into academic/CTE courses.
  - **8 teachers** across 10th/11th grades collaborate to provide **40 hours per student of PBL work time** in preparation for Tech Fair 2021.

EVERY STUDENT THRIVES!

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