

IBM Let's put Smart to Work

P-TECH 9-14  
School Model

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Please note that this Powerpoint Presentation has been modified from its original version to be more accessible

# P-TECH 9-14 School Model

- Focus: A new grade 9-14 public school model focused on STEM fields and Career and Technical Education
- Mission: Enable students to master the skills that they need to graduate with a no-cost associates degree that will enable them to secure an entry-level position in a growing STEM industry, or to continue and complete study in a four-year higher education institution.

**P-TECH: The pathway  
from classroom to career  
to a stronger economy**

# Gov. Murphy teamed up with IBM to announce a new STEM education program: It's called P-TECH

- Paterson
- PANTHER - P-TECH
- IBM
- Burlington City
- Burlington City High School
- Centryco Inc.
- New Brunswick
- New Brunswick High School
- Edwards Engineering

# Video

- In Their Own Words: IBM P-TECH Graduates
  - <https://www.youtube.com/watch?v=BZn05NZko48&feature=youtu.be>

# Skill Level Statistics

- Demand for Middle-Skill Jobs is Strong. According to a “Jobs by Skill Level” graph made from data acquired in 2015:
  - 16% of Jobs were Low-Skill level
  - 31% of Jobs were High-Skill level
  - 53% of Jobs were Medium-Skill level
- A Middle-Skill Gap
  - Middle-skill jobs account for 53 percent of the United States’ labor market, but only 43 percent of the country’s workers are trained to the middle-skill level

# Key model tenets

- Partnership between school district, higher education partner and industry
- Integrated high school and college coursework, linked to industry Skills Map, leading to an industry-recognized, postsecondary degree for all students. Students can graduate in less than six years, but the model ensures that students have the time and seamless supports necessary to earn their degree.
- Workplace learning strand, including mentoring, worksite visits, speakers, project days, and skills-based paid internships
- Open enrollment with focus on historically underserved students
- Cost-free postsecondary degree
- First-in-line for jobs with industry partners

# Key innovation: Industry Partnership

- Industry is involved in all aspects of the school, but has special responsibility for workplace learning:
- Skills mapping to ensure graduates are ready to enter the workforce and/or pursue higher education
- Workplace Learning curriculum
- Mentors for all students
- Workplace experiences: Speakers, worksite visits, job shadowing
- Skills-based paid internships
- First in line for jobs

# Results

- 185 graduates to date from most mature schools
- Graduated anywhere from 3.5-6 years
- First cohort: 4 times the on-time national community college graduation rate, 5 times for low-income students



# P-TECH Schools

- Include international implementations and are projected to grow 200 schools by end-of-year 2019

# PTECH New Hires at IBM

- For more information check out [ptech.org](http://ptech.org) or reach out to Martin Laird, IBM Citizenship Manager: [lairdmar@us.ibm.com](mailto:lairdmar@us.ibm.com)

# P-TECH at Panther

Eileen Shafer, District Superintendent

# Paterson At A Glance

- 27,722 students in P3-12
- 40+ spoken languages
- Per capita income \$16,878
- 34% of children live in poverty
- 11.2% Bachelor's degree or higher
- 84.8% High School Graduation Rate

# Advancing STEM in Paterson

- Revised Science curricula to meet new standards with discrete Engineering Units in grades K-12.
- Created Science Teacher Coordinator positions to support STEM instruction in early childhood & elementary grades.
- Increased effort to support teacher leadership: presentation teams presented at all National Science Teacher Association regional and national conferences in 2017-2018.
- Increased Advanced Placement (AP) and Dual Enrollment (DE) offerings in STEM disciplines to include:
  - AP Biology, AP Chemistry B, AP Physics, AP Environmental Science, AP Calculus
  - DE Analytical Chemistry, DE Chemistry, DE Astronomy, DE Anatomy & Physiology I, DE Anatomy & Physiology II, DE Introduction to Clinical Research, DE Pre-Calculus, DE Calculus, DE Probability & Statistics

# Partnerships to Support Innovation

- The Center for Innovation in Engineering and Science Education
- Paterson Education Fund
- Institute for Learning: University of Pittsburgh
- The Henry and Marilyn Taub Foundation
- New Jersey Audubon
- Ramapo College of New Jersey
- Hamilton Partnership for Paterson
- Victor Cruz Foundation
- William Paterson University
- City Green
- Rutgers State University of New Jersey
- Passaic County Community College
- Fairleigh Dickinson University

# Academy of Earth & Space Science

- 226 students
- 35% Female, 65% Male
- 26% Hispanic, 33% African American, 5% White, 4% Asian, 32% Undefined
- 69% Economically Disadvantaged
- 20% Students with Disabilities
- 6% English Language Learners
- 4 Year Graduation Rate: 92.2%
- Location adjacent to Passaic County Community College

# Passaic County Community College Existing Partnerships

- College Bound/Gear Up Program for 7-12th grade students – School year & summer
- STEM Success Program for 10-12th grade students – School year & summer
- Dual Enrollment
- Space Sharing Agreements



# New Jersey Labor Market, Opportunity, Demand and Skills – October 2018

- Software Developers, Applications
  - Rank: 1
  - Projected Statewide Change in Demand/Employment 2016-2026: +17.9%
- Registered Nurse
  - Rank: 3
  - Projected Statewide Change in Demand/Employment 2016-2026: +13.2%
- Computer Systems Analyst
  - Rank: 18
  - Projected Statewide Change in Demand/Employment 2016-2026: +17%
- Web Developers
  - Rank: 23
  - Projected Statewide Change in Demand/Employment 2016-2026: +20.3%
- Market Research/Marketing Specialist
  - Rank: 33
  - Projected Statewide Change in Demand/Employment 2016-2026: +17.1%

# P-TECH at Panther Associates of Applied Science Program: Web and Mobile Development

First Semester	Credits
CIS 106 Linux Fundamentals	1.0
CIS 107 Information Technology Fundamentals and Applications	3.0
CIS 108 Programming Fundamentals	3.0
EN 101 Composition I	3.0
MA 108 College Algebra	3.0
Social Science Elective	3.0
<b>Total</b>	<b>16.0</b>
Second Semester	Credits
CIS 125 Microcomputer Software I	3.0
CIS 180 Networking Essentials	3.0
CIS 165 Fundamentals of C++ Programming	4.0
CIS 170 Website Design and Tools	3.0
EN 102 Composition II	3.0
<b>Total</b>	<b>16.0</b>
Third Semester	Credits
CIS 202 Systems Analysis and Design	3.0
CIS 240 Mobile Apps Development	3.0
CIS 271 Web Application Development I	3.0
CIS 290 Database Fundamentals	3.0
ENS 106 Public Speaking	3.0
<b>Total</b>	<b>15.0</b>
Fourth Semester	Credits
BU 101 Introduction to Business	3.0
CIS 273 Web Graphics	3.0
CIS 275 Web Application Development II	3.0
CIS 294 Internship Program <b>OR</b> CIS 295 Capstone Project	2.0
History or Laboratory Science Elective	3.0 - 4.0
<b>Total</b>	<b>14.0</b>

# Progress to Date

- Steering Committee with Community Partners
- District Leadership Team
- Recruitment events at every PPS elementary school in December 2018
- On-line application available until 2/1/19
- Site visit to P-TECH Brooklyn
- Ongoing coordination with IBM and PCCC

# Next Steps

- Staffing
- Curriculum Alignment Committee
  - College readiness (academic)
  - Career readiness (soft skills)
  - Creation of new courses as necessary
- Program admissions
  - Mandatory parent orientation
  - Lottery process: 2 students from each school
- Facilities & Technology needs assessments
- CTE Application – Selection of Advisory Board
- Summer Bridge
- Vertical Articulation agreements

# Vision for P-TECH Paterson

- Nursing & Health Professions
- Green Infrastructure Technology
- Renewable Energy