Career & Technical Education
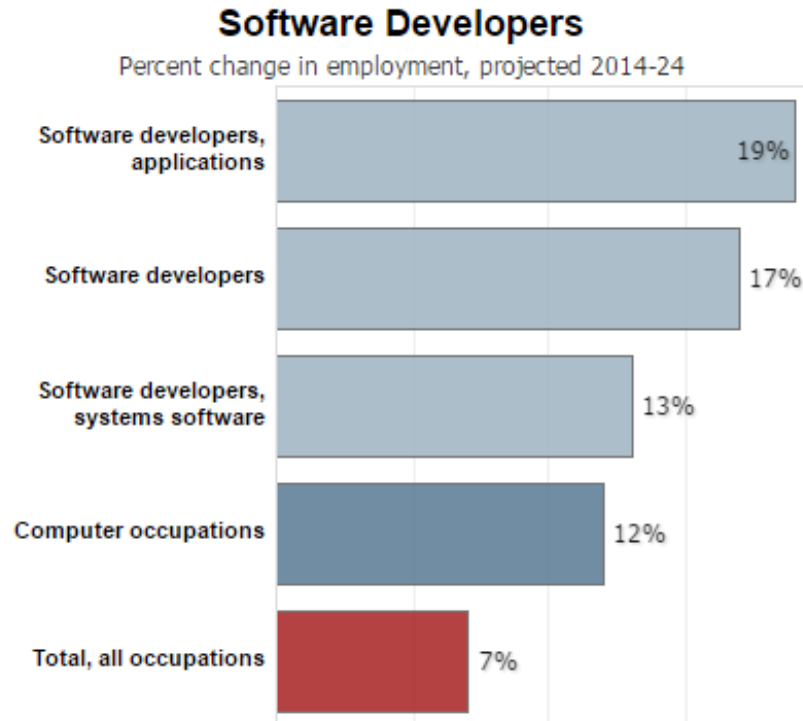# Computer Programing & Web Design

Bayside High School

According the Bureau of Labor Statistics,

Software Developers
Percent change in employment, projected 2014-24

- Software developers, applications — 19%
- Software developers — 17%
- Software developers, systems software — 13%
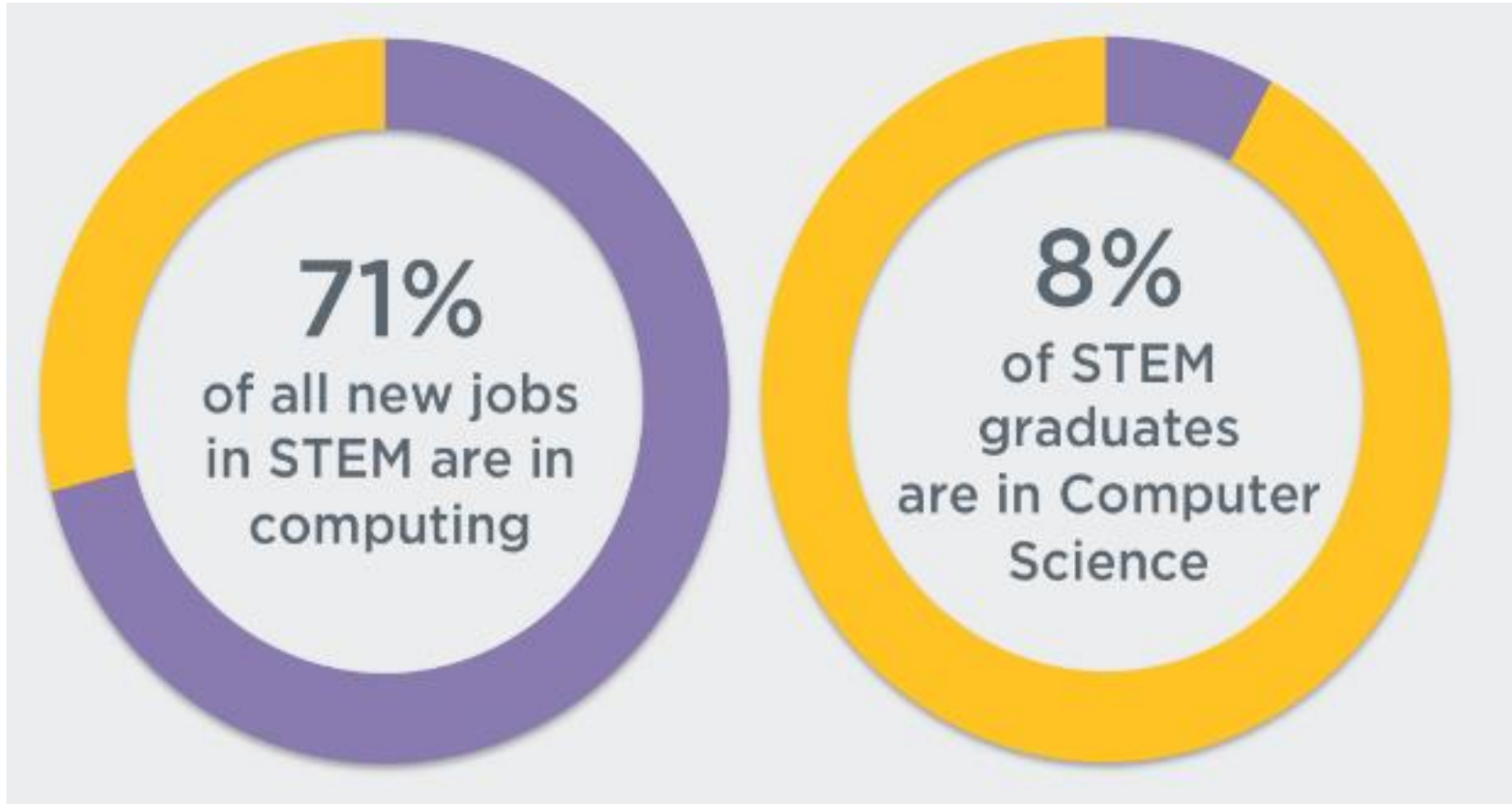- Computer occupations — 12%
- Total, all occupations — 7%

Note: All Occupations includes all occupations in the U.S. Economy.
Source: U.S. Bureau of Labor Statistics, Employment Projections program

With advancements in technology there is an exploding increase in the need for developers.

Not enough students are going into computer science related fields. Skills gap will widen unless we change.

71%
of all new jobs
in STEM are in
computing

8%
of STEM
graduates
are in Computer
Science

Presented by Code.org

Computer Programming & Web Design
Career & Technical Education

For over 10 years, Bayside High School has offered a comprehensive sequence of study in computer science that prepared students for careers and post-secondary education in STEM fields.

For the past 5 years with the integration of industry and post-secondary partners, Bayside High School has transformed the sequence into a Career & Technical Education (CTE) program in Computer Programming.
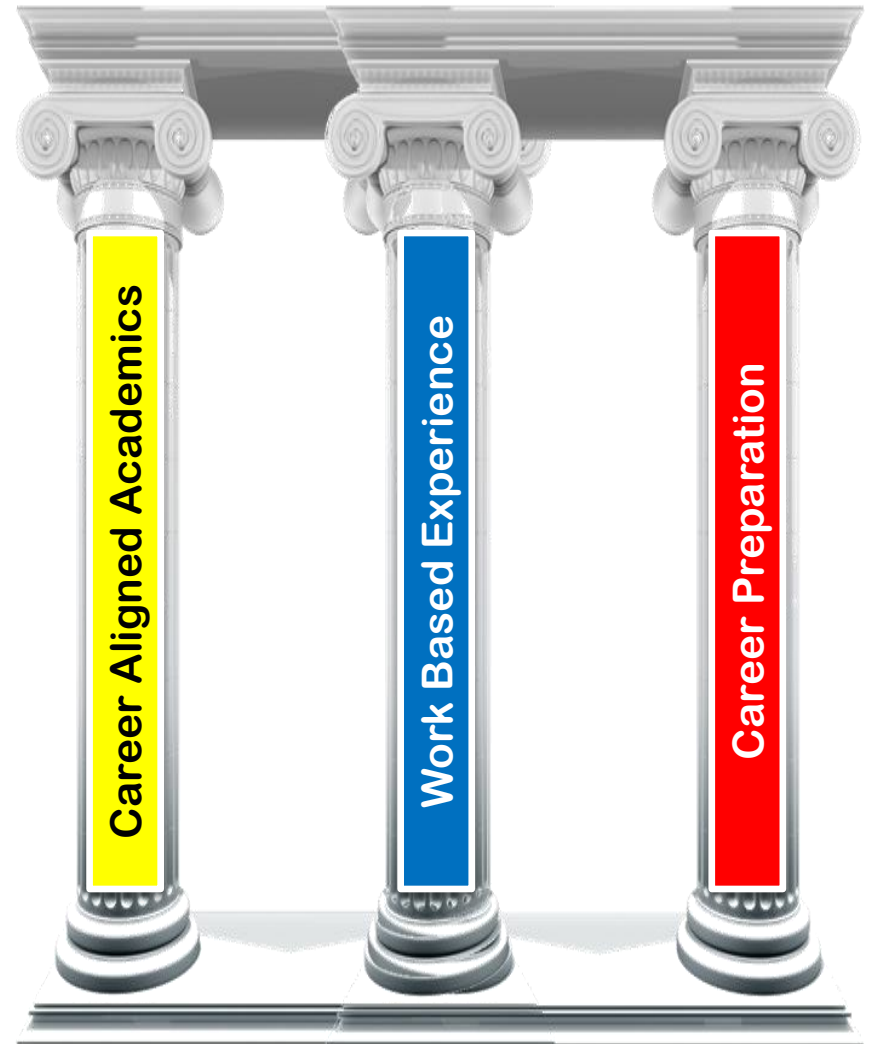
What is Career & Technical Education (CTE)?

CTE programs prepare students for careers and post secondary education in a career field by addressing 3 areas,

1. Career Aligned Academics
2. Work Based Experiences
3. Career Preparation

In 2010, Bayside High School started transforming its existing computer science program into a CTE program in Computer Programming.

In 2016, NYS approved the program allowing us to graduate students with state endorsed CTE diplomas.

Career Aligned Academics

Work Based Experience

Career Preparation

What is Career & Technical Education (CTE)?

With input from industry and post secondary partners, courses are aligned to prepare students for careers in computer programming and provide college credit through articulation agreements.

All students must take 7 elective credits to graduate. CTE programs focus these electives into career aligned courses.

In the Computer Programming & Web Design CTE students will take,

9th - Programming Technologies (2cr / optional)
10th - Introduction to Computer Programming (2cr)
11th - Introduction to Computer Science (2 cr)
12th - CS Career Development (2 cr)
Career & Financial Management (1cr)

Career Aligned Academics

What is Career & Technical Education (CTE)?

Work Based Experience

At the core of CTE is the understanding that students must see, experience and apply what they are learning in the classrooms.

In the Computer Programming & Web Design CTE students participate in various work based and post secondary education experiences such as,

- Guest Speakers
- Career Fairs
- Mentorships
- Internships
- Career Readiness Events
- Competitions / Hackathons
- Career Focused Trips
- University Trips
- Industry Interactive Projects

What is Career & Technical Education (CTE)?

Career Preparation

To validate a student's Career & Technical Education, every student must pass a industry based certification, complete a culminating capstone project and take the Career and Financial Management course.

In the Computer Programming & Web Design CTE students,

- Pass the NOCTI Computer Programming Exam (4023).
- As part of their capstone project, research a need, propose a product, develop and pitch their solution.
- Develop resume, job searching and interviewing skills
- Practice workforce skills such as collaboration, communication and presentation.

Career Preparation

What is Career & Technical Education (CTE)?

Overview

Career Aligned Academics

1. Introduction to Computer Programming
2. Introduction to Computer Science
3. CS Career Development
4. Career & Financial Management

Work Based Experience

1. Guest Speakers
2. Career Fairs
3. Mentorships
4. Internships
5. Career Readiness Events
6. Competitions / Hackathons
7. Career Focused Trips
8. University Trips
9. Industry Interactive Projects

Career Preparation

1. NOCTI Computer Programming Exam (4023)
2. Capstone Project
3. Essential workforce skills

Work Skills Employability Profile

Work Skills Employability Profile (WSEP) is one of the essential documents used to connect the academics, work based experiences and the industry preparation. WSEP lists workforce and technical skills required for entry level positions in Web and Software Development.

Career Aligned Academics

- Skills are aligned by course
- Scaffolding skills to build depth of knowledge

Work Based Experience

- Students enhance their skills through work based experiences
- Experiences serve to motivate, build and reinforce workforce and technical skills

Career Preparation

- Students monitor their skills through out
- Used during internship opportunities

Collaboration & Communication

Career Aligned Academics, Work Based Experiences and Career Preparation are only possible through constant communication and collaboration. High school faculty along with industry and post secondary partners continuously work together to maintain and improve the career and technical education offered to students.
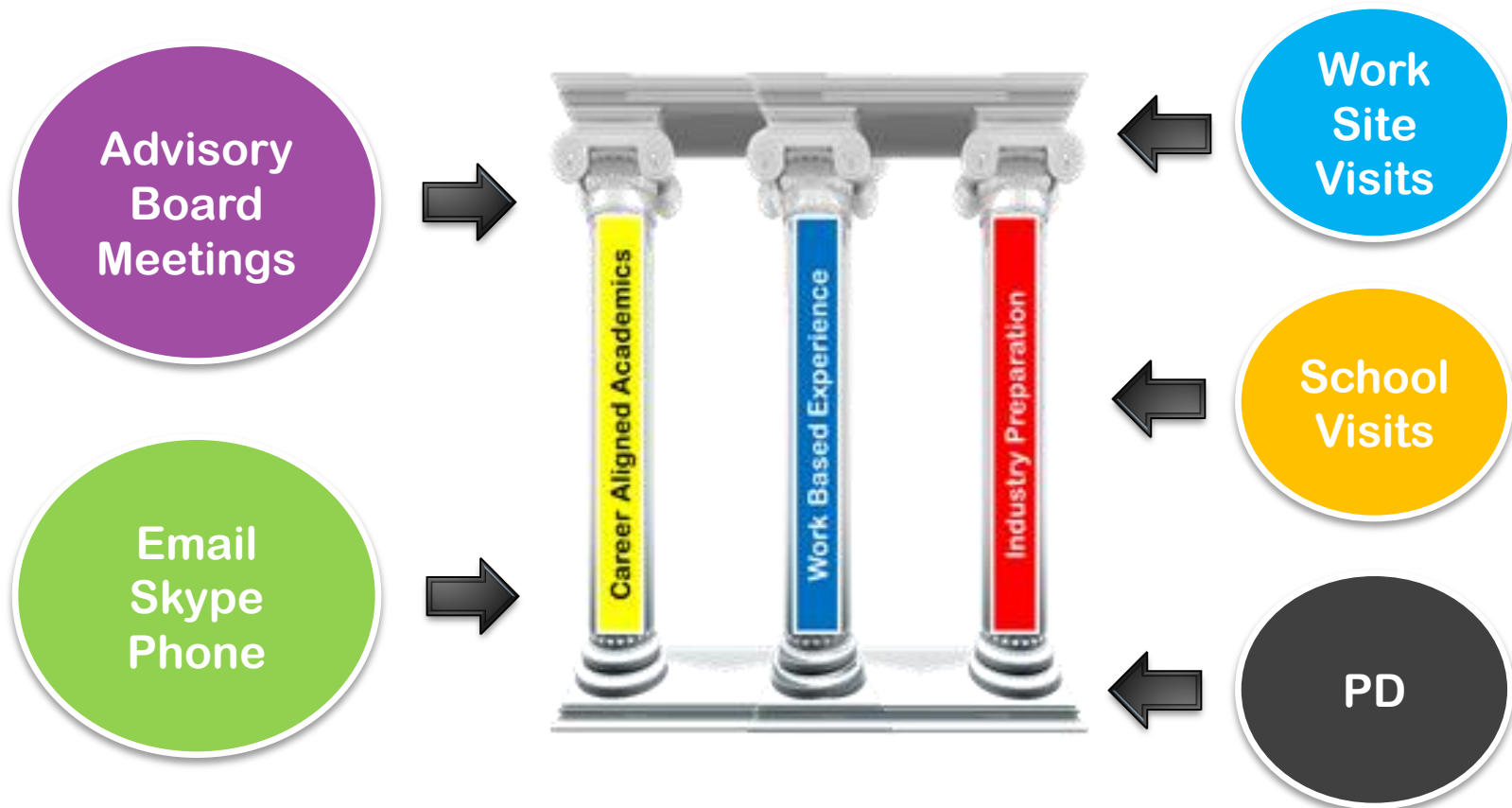
End State

Through successful completion of the Career and Technical Education program in Computer Programming and Web Design students,

1. Receive college and career focused education

2. Opportunity to earn college credit through high school courses

3. Gain experience and build resumes by participating in internships, mentorships, competitions, career fairs and various other industry collaborated opportunities