

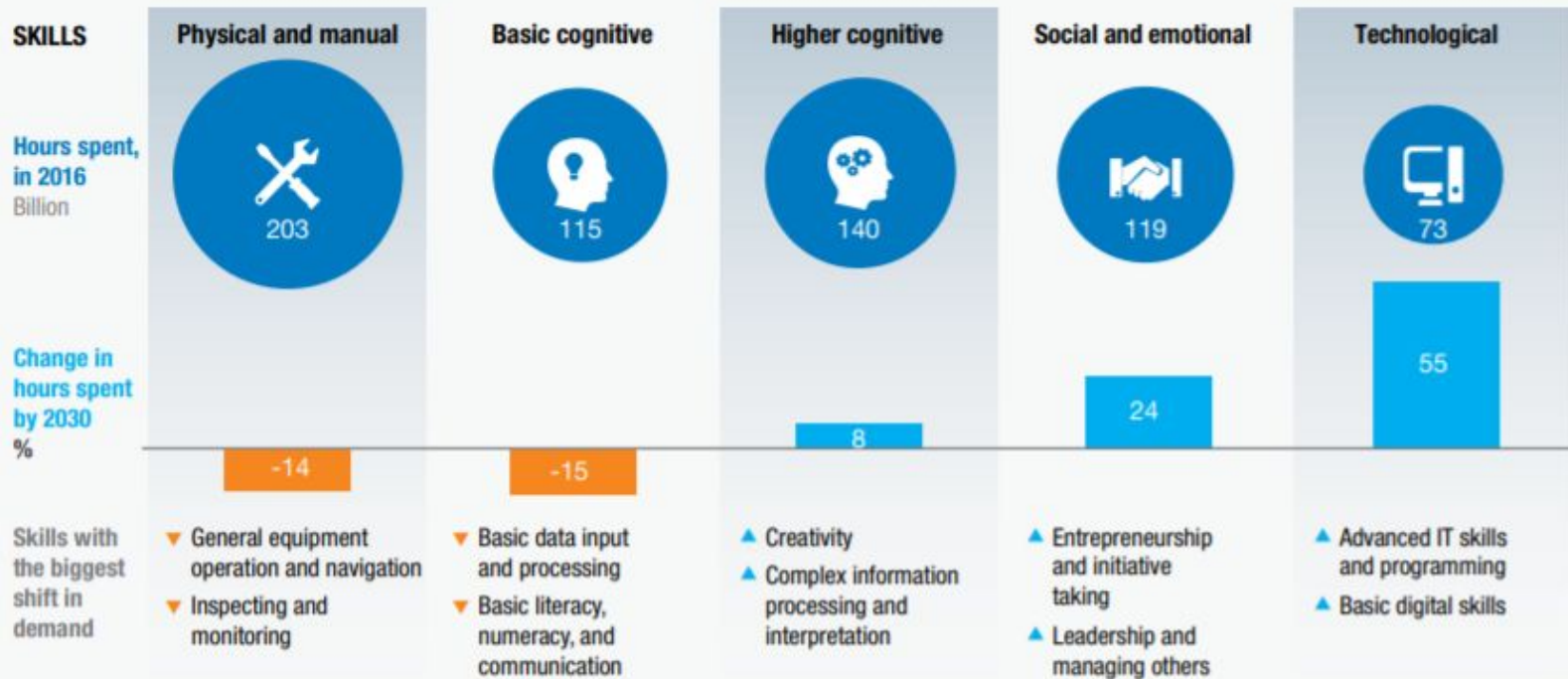


Beacon City School District

Instructional and Professional Development
Budget Update March 25, 2019

Automation and AI will change the skills needed in the workforce

Total is for United States and 14 Western European countries



A Culminating Impact...

Table 9.1

Areas Characterized as an Extreme or High Concern by 50% or More Principals, 2018

Area	% of principals
Increase in the numbers of students with emotional problems	73.7
Student mental health issues	65.5
Students not performing to their level of potential	62.3
Providing a continuum of services for students who are at risk	61.6
Student assessment	57.2
Student poverty	56.5
Instructional practices	55.8
Teacher performance/effectiveness	55.1
Professional development of staff	55.0
Fragmentation of principal's time	53.5
Management of student behavior	52.5
Financial resources	50.8

From the 2018 NEASP 10 Year Report (National Association of Elementary Principals)



Beacon Mission

To prepare
EVERY student
for **learning, life,**
and **work**
beyond school.

In pursuing this Mission, we believe:

- The diversity of our community is a strength
- In providing an equitable education for all students regardless of race, ethnicity, class, disability, gender identity, or sexuality.
- A culture of care, including ensuring a safe and supportive emotional environment for all, will help ensure the wellness of the entire school community.

Mission – to prepare *EVERY* student for learning, life, and work beyond school.

Vision – that every student leaves Beacon City with the following...

Skills and Abilities -

• **Communication**

- *Organize and articulate thoughts - write, speak or create media for a variety of purposes and audiences*
- *Use digital tools for a variety of purposes and audiences*
- *Actively listen, comprehend, and respond appropriately*

• **Problem solving (solving complex problems)**

- *Identify and frame problems with their associated consequences*
- *Understand and apply problem solving processes*
- *Implement and reflect on the effectiveness of proposed solutions*

• **Creative and Critical Thinking (divergent/convergent)**

- *Identify multiple perspectives, options, or pathways*
- *Apply novel or insightful notions*
- *Apply criteria and evaluate for a purpose*
- *Use evidence, logic and reason.*

• **Collaboration – Independence**

- *Work with others to accomplish tasks and solve problem*
- *Demonstrate metacognition of interpersonal skills*
- *Fulfill different roles in a variety of situations*
- *Demonstrate self-direction and initiative*
- *Overcome obstacles to success*

Digital literacy -

- *Be a good digital citizen*
- *Practice effective search techniques*
- *Apply criteria and analysis processes for information validity*
- *Consistently use reliable and valid information in the service of learning*

Attributes and Dispositions

Empathy

- *Kindness, care, and compassion for others*
- *Respect for persons and property*
- *Understanding of the circumstances and opinions of others*

Self-Regulation

- *Self-awareness and emotional metacognition*
- *Ability to recognize and act to regulate reactions and shift actions*

Citizenship/Community

- *Understanding that all members are part of a larger whole*
- *Demonstrates the relationship between rights and responsibilities.*
- *Contributes to the overall success of the community as a whole*

Curiosity, Wonder, Awe, & Imagination

- *Generates questions and follows leads*
- *Investigates and creates*
- *Demonstrates a passion and energy for learning*

Adaptability/Flexibility

- *Calm and positive when structures or patterns change*
- *Sees change as opportunity*

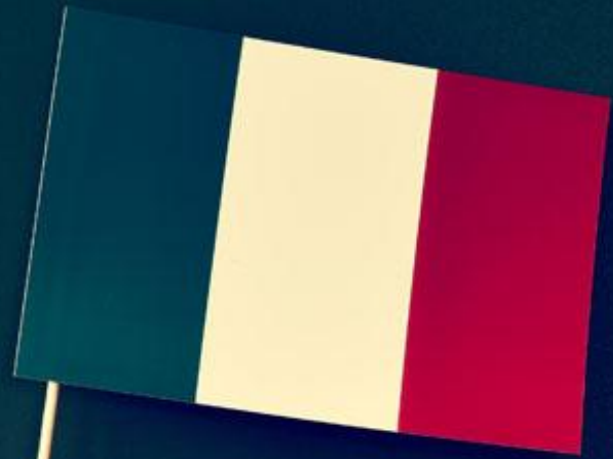
Programming 2019-2020

BHS

- Business Education Program - Planning year for internship model for 20-21
- PLTW - Computer Science Program - Year 1 Computer Science Essentials
- Italian Course
- Art Coursework - Architecture Design, Interior Design, Sculpture
- English Department
- AP Language & Composition Course
- Magic Realism in literature
- Media Literacy
- Research Literacy

Foreign Language

PARLI
ITALIANO?



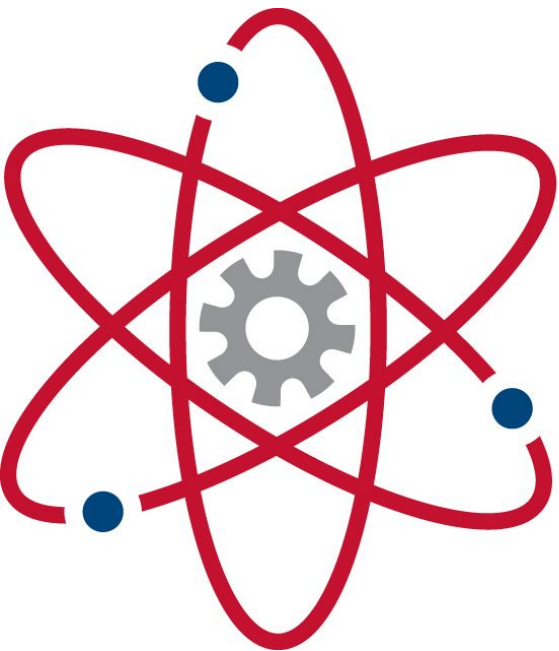
English Electives

- AP Language & Composition Course
- Magic Realism in Literature
- Media Literacy



Art Electives

- Dia - Contemporary Art Concepts - Level I & II
- In the process of obtaining college credit for these courses.
- Interior Design
- Architectural Design



PROJECT LEAD THE WAY

PLTW

MAP OF COMPUTER SCIENCE

COMPUTATIONAL COMPLEXITY

NP COMPLETE
PSPACE
NP
BQP
P

DOES P=NP?

EFFICIENT FOR A MODERN COMPUTER

EFFICIENT FOR A THEORETICAL COMPUTER

INFORMATION THEORY

Compression
Error Correction
Coding Theory
Parity Checking

CRYPTOGRAPHY

Public Key
Private Key
All the secrets

HARDWARE

Monitor
CPU
SSD
RAM
Motherboard
Power
Input

COMPUTER ARCHITECTURE

SCHEDULING PROCESSES
CPU
GPU
MULTIPROCESSORS
FPGA
LOGIC BLOCK
INTERCONNECTION
INPUT/OUTPUT
SWITCH BOX
CONNECT BLOCK

THEORETICAL COMPUTER SCIENCE

ALGORITHMS

Bubble Sort
Merge Sort
Analysis of Algorithms

COMPUTABILITY THEORY

Alan Turing
Turing Machine
Lambda Calculus
Computational Geometry

TURING MACHINE

Start Register
Infinite Long Tape
Head
Parallel Programming

COMPUTER ENGINEERING

SOFTWARE AND PROGRAMMING LANGUAGES
Python, JavaScript, PHP, Swift, Java, C#, C++, C, Assembly
Operating System, BIOS, Machine Code
Compilers, Assemblers
Data Management, Databases, SQL, Datacentres

MACHINE LEARNING

Supervised, Unsupervised, Reinforcement
Neural Network, CAT

OPTIMISATION

Finance, League of Legends
Boolean Satisfiability (SAT)

SOFTWARE ENGINEERING

Formal Methods, Unit Testing, Version Control
Object Oriented Design, Computer Graphics

OPERATING SYSTEMS

iOS, macOS
Performance, Computer Analysis, Benchmarking
Hacking

COMPUTER VISION

Find the Humans

ARTIFICIAL INTELLIGENCE

A.I.
Robotics

APPLICATIONS

Virtual Reality, Augmented Reality

COMPUTATIONAL SCIENCE

Computational Physics, Numerical Analysis, Bioinformatics, Computational Chemistry
Simulation, Big Data

IMAGE PROCESSING

Chatbots

NATURAL LANGUAGE PROCESSING

Knowledge Representation
Cake Example: Scones, Tea, Flour, Butter, Birthday, Food, Bacon, Celebration, Pancake, Breakfast

TELEPRESENCE

Human Computer Interaction

INTERNET OF THINGS

World Map

Business education prepares students to be college and career ready.

Students are leaving high school without essential business skills and knowledge needed to be prepared for college, a career, and to function as informed, intelligent, and productive consumers and citizens.



Social Worker

Social workers working within school systems provide services to students to enhance their emotional well-being and improve their academic performance.

School social workers often also address issues for at-risk students.



Staffing 2019-2020



Secondary

Elementary

- 1 class size reduction FTE

- High School -
- 1 Business Teacher (waiting to see final budget from NYS)
- 1 Social Worker
- .5 Art Teacher (Waiting to see final budget from NYS)

Initiatives 2019-2020

- High School 1:1 Chromebooks
- Middle School Computer Based Benchmark Assessments
- ➔ Reading
- ➔ Math
- MSP Summer Institute for RMS & BHS Math, Tech, & Science Teachers
- STEM Curriculum Development - Elementary schools- Work on infusion of sustainability into curriculum development

Professional Development 2019-2020

Elementary Schools

- Math/ELA Professional Development
- Responsive Classroom Training
(Cohort # 1)

Middle School

- Restorative Practices (Cohort #1)
- Math Science Partnership Summer
Institute

High School

- Project Lead the Way - two weeks
- Restorative Practices - (Cohort #1)
- Standards Training (ELA, Math &
Science)

K - 12

- Co- Teaching Support
- Engagement Institute
- Dignity Framework (Cohort #1)

Programming 2020-2021

- Business Education Internship Program
- Project Lead the Way - Computer Science Principles AP
- Project Lead the Way - Gateway Series for RMS
 - 10 Week Modules



Staffing 2020-2021

- 1 FTE - Day Pre-K Pilot
(potentially grant funded)
- 1 Professional Development
TOSA (potential)



Professional Development 2020-2021

Elementary Schools

- Math Professional Development
- Responsive Classroom Training (Cohort # 2)

Middle School

- Math Professional Development
- Restorative Practices - (Cohort #2)

High School

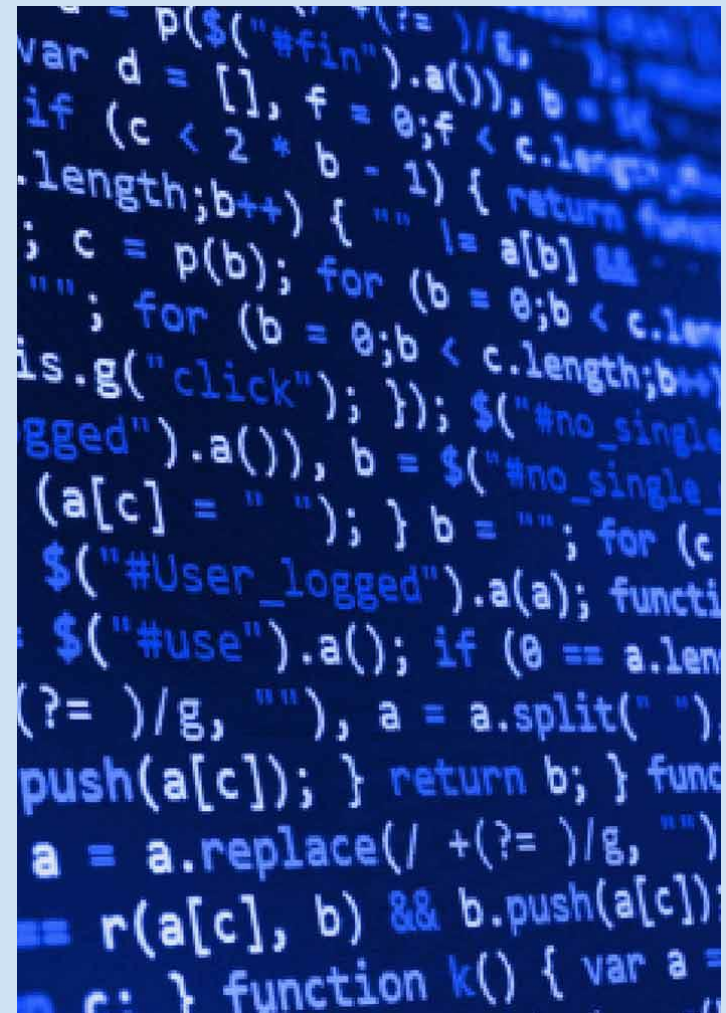
- Project Lead the Way - two weeks
- Restorative Practices - (Cohort #2)
- Standards training (Science)

K - 12

- Engagement Institute (year 2)
- Dignity Framework Training - (Cohort #2)

Programming 2021-2022

- Programming
- Project Lead the Way Computer Science - RMS
- Coding in K-5 implemented in elementary classrooms
- Science Research Course Grade 11 & 12



Staffing 2021-2022

- 1 FTE STEM/Digital Fabrication Teacher BHS
- 1 FTE Full day Pre-K (potentially grant funded)
- 1 FTE Professional Development TOSA



Professional Development 2021-2022

Elementary Schools

- Math/ELA Professional Development
- Responsive Classroom Training
(Cohort # 3)

Middle School

- Math Professional Development
- Restorative Practices - (Cohort #2)

High School

- Project Lead the Way - two weeks
- Restorative Practices - (Cohort #3)
- Standards training (Science)

K - 12

- Dignity Framework Training -
(Cohort #3)

Looking into the future -2022-2023

New Digital Fabrication Lab at Beacon High School

Overhaul of Television Studio at Beacon High School

Projected Capital Project Vote December, 2020

