POCANTICO HILLS SCHOOL DISTRICT

THINK-CREATE-COLLABORATE
COMPUTER SCIENCE AND INNOVATION, K-8

BOARD OF EDUCATION PRESENTATION
JANUARY 23, 2018

ADAM BROWN
DIRECTOR OF CURRICULUM & TECHNOLOGY

BRENT HARRINGTON
PRINCIPAL
• **1 - Empowered Learner**
  • Students take an active role in choosing, achieving and demonstrating competency in their learning goals.

• **2 - Digital Citizen**
  • Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world.

• **3 - Knowledge Constructor**
  • Students critically curate a variety of resources to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.

• **4 - Innovative Designer**
  • Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

• **5 - Computational Thinker**
  • Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

• **6 - Creative Communicator**
  • Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.

• **7 - Global Collaborator**
  • Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.
How can I formulate this problem so it can be solved using computers?
ENGINEERING DESIGN PROCESS

Understand
Make sense of and learn about the problem. Investigate what related work has been done before, and determine if the initially identified problem is really a problem.

Empathise
Gain deep understanding of intended user’s experience

Define
Analyse collected data and identify a user’s need to address with the design solution

Ideate
Diverge on a large quantity of possible ideas that could evolve into solutions

Prototype
Develop some of the ideas into tangible objects

Test
Evaluate finished objects with their users and collect input for improvement
Stripling Model of Inquiry

Connect
- Connect to self, previous knowledge
- Gain background and context

Wonder
- Develop questions
- Make predictions, hypothesis

Reflect
- Reflect on own learning
- Ask new questions

Express
- Apply understandings to a new context, new situation
- Express new ideas, to share learning with others

Investigate
- Find and evaluate information to answer questions, test hypotheses
- Think about information to illuminate new questions and hypotheses

Construct
- Construct new understandings connected to previous knowledge
- Draw conclusions about questions and hypotheses
### Computer Science Components in Elementary School

**Implementation Phase 2017-2018**

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<thead>
<tr>
<th></th>
<th>Kindergarten</th>
<th>First Grade</th>
<th>Second Grade</th>
<th>Third Grade</th>
<th>Fourth Grade</th>
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<td>Kodable &amp; Dash and Dot</td>
<td>Kodable &amp; Dash and Dot</td>
<td>Code.org</td>
<td>CS-First: Scratch</td>
<td>CS-First: Scratch</td>
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### Computer Science Components in Middle School

**Design Phase 2017-2018**

<table>
<thead>
<tr>
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<th>Fifth Grade</th>
<th>Sixth Grade</th>
<th>Seventh Grade</th>
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<td>Genius Hour</td>
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<td>STREAM Innov&amp;Design</td>
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<td>CS-First: Scratch</td>
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<td>Program Lang</td>
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KINDERGARTEN

KODABLE
COMPUTATIONAL THINKER
GRADE 2
CODE.ORG
GRADE 4 COLLABORATOR AND COMMUNICATOR SCRATCH
GRADE 3
EMPOWERED LEARNER & CREATIVE COMMUNICATOR
SCRATCH
EXTRACURRICULAR OFFERINGS

ROBOTICS
3D PRINTING
POCADEMY
PTA NIGHT
AUTHENTICITY OF LEARNING

The pursuit of passion projects and the exploration of real-world problems

Pocantico Middle School’s Genius Hour and Innovation & Design
Redefining Teaching and Learning at Pocantico

AUTHENTIC LEARNING

Teaching that Engages
Culture that Empowers
Technology that Enables
Outcomes that Matter
CULTURE THAT EMPOWERS

🗹 Collaboration
🗹 Creativity & Exploration
🗹 Growth Mindset
🗹 Emotional Intelligence

ISTE Student Standard 2 (Digital Citizen): Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.

ISTE Student Standard 7 (Global Communicator): Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.
TEACHING THAT ENGAGES

◈ Voice & Choice

◈ Student Agency

ISTS Student Standard 1 (Empowered Learner): Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.

ISTS Student Standard 3 (Knowledge Constructor): Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.

ISTS Student Standard 4 (Innovative Designer): Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.
OUTCOMES THAT MATTER

- **Oral & Written Communication**
- **Critical Thinking**

**ISTE Student Standard 3 (Knowledge Constructor):** Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.

**ISTE Student Standard 5 (Computational Thinker):** Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

**ISTE Student Standard 6 (Creative Communicator):** Students communicate clearly and express themselves creatively for a variety of purposes using platforms, tools, styles, formats and digital media appropriate to their goals.
**TECHNOLOGY THAT ENABLES**

- Ubiquitous use of Technology
- Digital citizenship
- Product-oriented/STEM supported

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