

Middleborough Celebrates Computer Science Week & The Hour of Code

[Photo Gallery](#)



Computer Science Week and the Hour of Code were celebrated across the Middleborough Public Schools from December 3rd through the 7th.

With technology changing every industry on the planet, computing knowledge has become part of a well-rounded skill set. It's important for students to learn how to navigate today's tech-saturated world and to do so beyond apps, games, and Google.¹ By participating in the Hour of Code, we have given our students an opportunity to better understand all that goes into creating the tech-tools and games that they engage with on a daily basis. Beyond the technical skills gained through this experience, our students gained more experience to bolster their acquisition of 21st century skills and the mindset needed to take on and conquer challenges.

At the Memorial Early Childhood Center, Mrs. Katie engaged our kindergarten with an “unplugged” coding activity to track Santa. Students used a floor grid and directional arrows to get Santa through several mazes. They used flashcard arrows to create chains of code and made the code "run" by pressing play. Students also learned how to debug glitches in their code. Students used teamwork and persistence to take on hard challenges several times before they were successful. After these challenges using props and a floor grid, students tried similar challenges in Google Code Lab and got to see Santa move on the screen toward his lost presents.

After working out how to create a chain of code, students tried another unplugged activity using

¹<https://hourofcode.com/us/promote/stats>

flashcards to create a dance sequence for the students to perform. Students learned how to use a repeater block (loop) to repeat dance moves. Students performed the moves to a Hanukkah Dance Song and then used Code Boogie to create a chain of code on the computer to make an elf follow dance commands. They also tried using a loop to make their elf repeat the sequence several times. This was a cooperative learning activity where kids planned and then worked together to edit a dance. Students also took turns being the "programmer" and who would input commands, while the "creative team" worked on the artistic job of choreographer.

At the Henry B. Burkland and Mary K. Goode Elementary Schools our first graders engaged with Lightbot, which is a game that uses programming logic to solve puzzles offered through Code.Org. Mrs. Crawford and Mr. Steinberg lead students through the first couple of puzzles and within no time our students were off and running! They learned how to sequence their instructions, write procedures, and use loops in their code to solve various puzzles.

Our second graders had some prior experience with Lightbot, so they were ready to take on the next challenge by learning about computer science and internet safety with a self-paced course that walks students through a variety of lessons to learn the skills needed for them to create their own game or story. The lessons were not just about block coding. They incorporated messages encouraging them to take risks with their learning and persevere because challenges can be overcome with hard work and critical thinking.

Students in grades 3 - 5 had completed their own course through Code.Org to solidify their understanding of the various blocks available to use when block coding. Then they were able to apply their skills in various applications. Grade 3 students transferred their block coding skills to Flappy Game so students could learn how create their own commands in a video game. Our 4th and 5th graders used Dance Party to code their own dance party where our students developed programs that respond to timed events or user inputs while creating dance animations with coding.

Our elementary students not only had fun while engaging in these coding activities. They demonstrated grit and perseverance by overcoming every coding challenge they encountered. They supported their peers by offering help when a challenge just seemed out of reach. They enhanced their computational thinking through thinking critically to solve problems in how to resolve the coding challenges they faced.

Engaging with computer science and coding is commonplace in our new Digital Innovation program facilitated by Mr. Ned Charpentier at the John T. Nichols, Jr. Middle School. Mr. Charpentier, teaching grades 6-8, also builds on student knowledge gained through the work of teachers like Mrs. Iveson, Mrs. Crawford and Mr. Steinberg.

Mr. Charpentier is passionate about empowering our students with the skills needed to be effective problem solvers. He stated that "Coding shows our students a way of looking at complex problems and discovering clever and novel solutions. This way of thinking can benefit our students in many future career paths." During Computer Science week at Nichols, students used creativity and problem solving to explore the underwater world of Minecraft Voyage

Aquatic using the programming language Blockly. Blockly is a great foundation to introduce students to coding. Students grow their understanding by working with the front-end web technologies HTML5, CSS3, and JavaScript. Students also work in an interactive app where they learn the fundamentals of Python, the world's fastest growing programming language².

Middleborough High School's computer technology program continues to evolve to meet the needs of our students. To better prepare them to compete in the always changing world of technology we offer a variety of course options. Courses which focus on Web Design expose and give our students a working knowledge of HTML and CSS. Courses with content in Game Design expose students to GML which can be learned by using a script based code option as well as a DND (drop and drag) interactive option. Lastly our students are offered a Scratch course which is designed to use a DND (drop and drag) format. MIT offers this program for free, which can be downloaded by our students to their laptops.

During Computer Science Week and the Hour of Code, our high school students used Scratch to create a 3-level maze or scavenger hunt game with an opening screen containing directions on how to play the game. The 3 game play rooms get more and more difficult as the player moves through the game. In each room the number of ghouls/obstacles should increase by an exponent of 2. In addition, the rooms have 4+ obstacles like trap doors, oil slicks, etc. Sounds are an important part of the game with the following effect types: background sound, explosions, and creaky doors. This Hour of Code activity allowed our students opportunities for creative and technical expressions of their knowledge.

The Middleborough Public Schools has been working hard to foster a culture of innovation and achievement for all in our district. We believe that celebrating Computer Science Week and the Hour of Code has empowered our students to master technical content while developing independence and an innovative mindset.³

Emphasizing the needed technological skills is important to open the door to opportunities for our students. Technology is transforming every industry on the planet. In 2015, 7 million openings in the U.S. were in occupations—including art and design—that value coding skills. We know that regardless of what our students do when they grow up, whether they go into medicine, business, politics, or the arts, knowing how to build technology will give them confidence and a competitive edge.⁴

² The Incredible Growth of Python | Stack Overflow; David Robinson- Juan-Julia Silge-Jason Punyon - <https://stackoverflow.blog/2017/09/06/incredible-growth-python/>

³ Middleborough Public Schools' Strategy for Continuous District Improvement

⁴ <https://hourofcode.com/us/promote/stats>