



What can AP Computer Science Contribute to Business Education?

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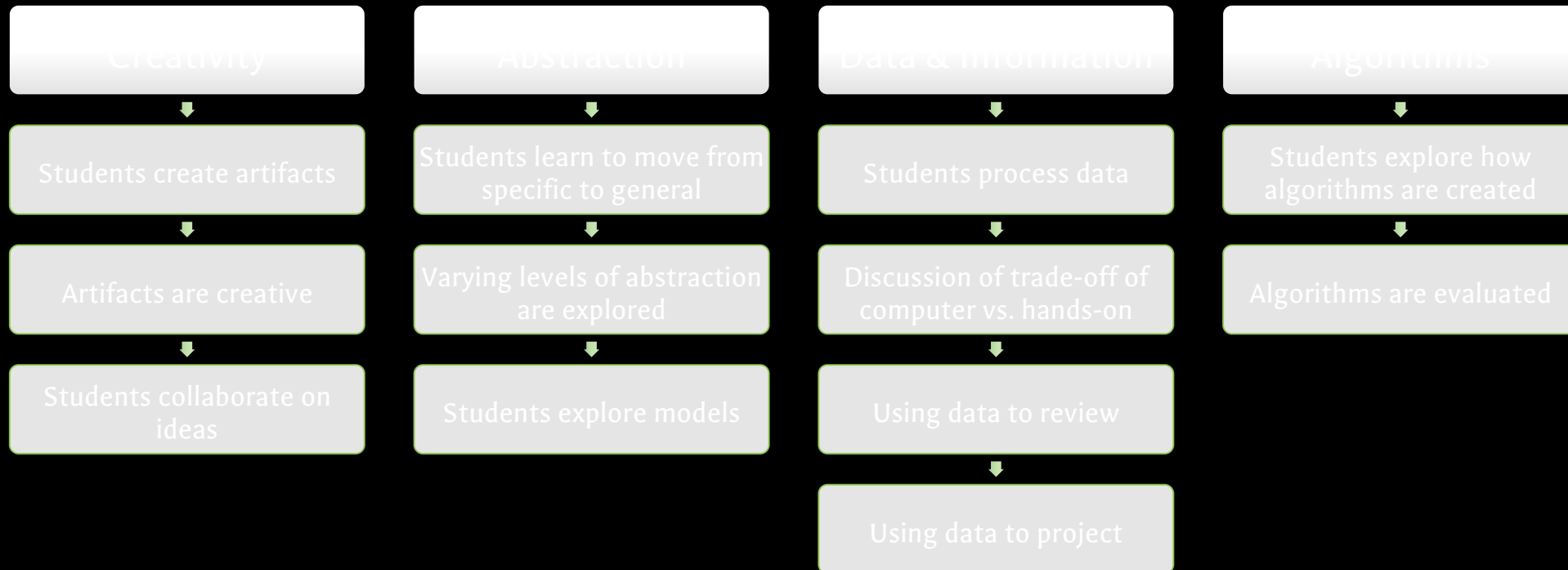
What is AP Computer Science?

- AP Computer Science A
 - The emphasis of this course is computer programming
 - The current programming language is Java
 - The AP subset of Java is small in order to make it easier to test students' abilities
 - The AP exam is composed of multiple choice and free response questions
 - The AP exam is not taken on a computer
 - Other topics include the ethical use of technology and the definitions of a computer's hardware

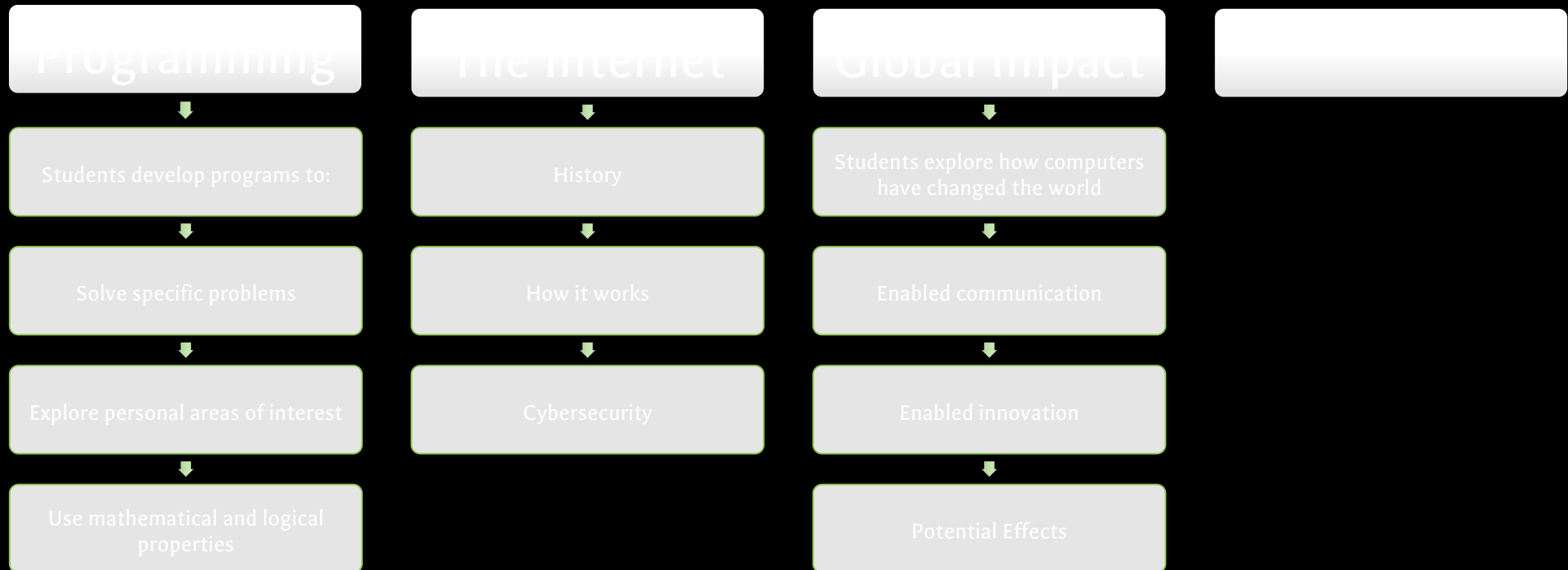
What is AP Computer Science?

- AP Computer Science A
- AP Computer Science Principles
 - This course was implemented in the 2016-2017 school year
 - The course was piloted throughout the country for several years, with the first students taking the APCSP exam in May, 2016
 - The AP exam consists of two performance tasks that are completed in class with teacher supervision and submitted to the College Board as well as a multiple-choice exam
 - Instead of focusing on computer programming, the course explores several areas related to computing

The Big Ideas of APCSP



The Big Ideas of APCSP



How can APCS help with my Business Students?

What are the connections between APCS and Business Education?

Comparing the Business Pathways and the APCS courses

Business, Management, and Administration

- Demonstrate employability skills required by business and industry
- Demonstrate creativity by asking challenging questions and applying innovative procedures and methods
- Apply technology as a tool to increase productivity to create, edit, and publish industry-appropriate documents

AP Computer Science

- Students learn how to communicate effectively through the use of technology
- Creativity is one of the Big Ideas in APCSP
- Students learn to collaborate and challenge each other with ideas for programs
- Students learn effective and appropriate uses of technology

Comparing the Business Pathways and the APCS courses

Human Resources Principles

- Analyze the data and respond to results of job description analysis, development, and design
- Analyze various evaluations content, format, and frequency used by existing companies for a particular career area

AP Computer Science

- Students learn the most efficient ways to analyze data and write programs to collect and process data
- Programs can be written to make comparisons between company evaluations
- Students discuss the ethical implications of using technology versus other methods

Comparing the Business Pathways and the APCS courses

Entrepreneurship

- Detail the importance of technology to business operations and performance
- Manage and operate a business through daily tasks and activities of a small business
- Manage the image of the business by critiquing the logo, slogan, online, and social presence of the business

AP Computer Science

- Students learn how technology can affect the global community as well as the ways technology can be abused
- Students use programs and technology to run simulations and model scenarios
- Web pages are investigated and designed for message and clarity

NBEA National Standards for Business Education

- The NSBE are based on the conviction that business education competencies are essential for all students.
- Because all students will encounter a business environment that is characterized by diversity
- Because all students will use technology as a tool for managing information, all students need to hone the learning skills that foster flexible career paths and confidence in adapting to a workplace that demands retooling
- Technology has accelerated the pace and frequency of change not only in business but also in life

FBLA Competitive Events – 2017 NLC

Competitive Event Topics

- 3-D Animation
- Business Financial Plan
- Coding & Programming
- Computer Game & Simulation Programming
- Digital Video Production
- E-Business
- Emerging Business Issues
- Graphic Design
- Mobile Application Development
- Social Media Campaign
- Website Design

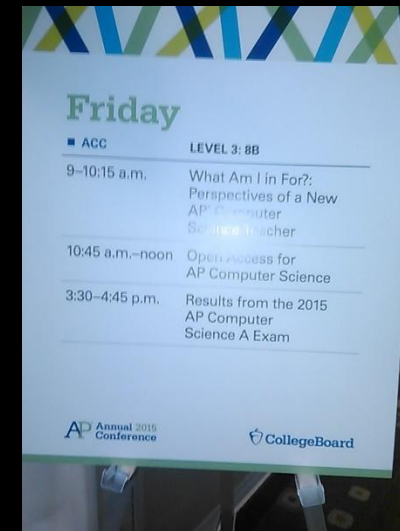
- BSEd and MED in Mathematics Education
- 16-year veteran of high school teaching
- 11 years of experience teaching AP Calculus
- Grew up using a Commodore 64 and programming in BASIC
- Experienced internet browser
- Willing

Who can become an AP Computer Science teacher?



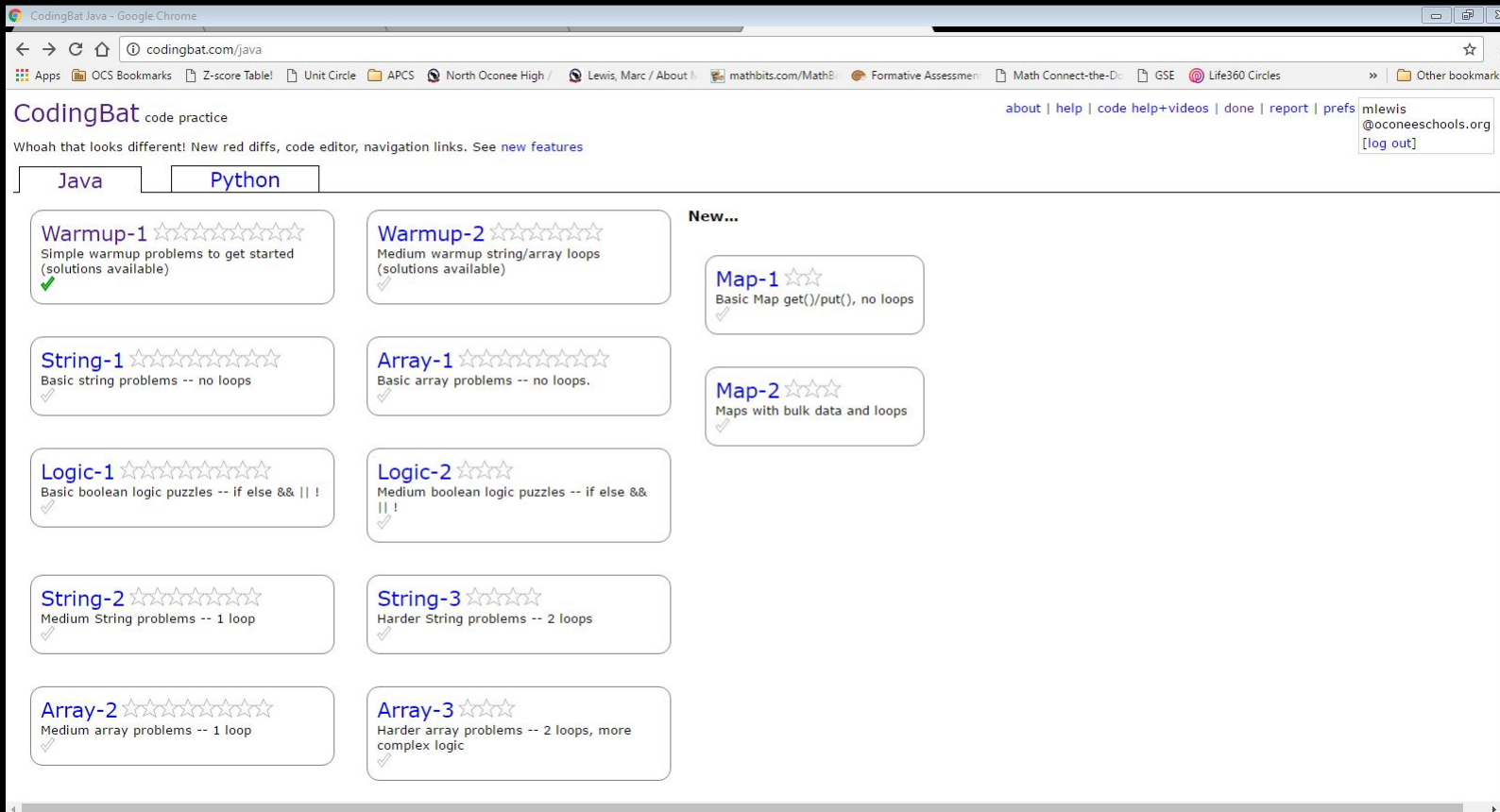
- Attended National AP Convention in Orlando
- Attended week of training at KSU each summer for 3 years
- Attended one-day workshops
- Joined College Board AP Community
- Taught the class

How do you become an AP Computer Science teacher?



What can I use in my AP Computer Science classroom?

- IDE – Integrated Development Environment – BlueJ, etc.
- Coding Bat - <http://codingbat.com/java>

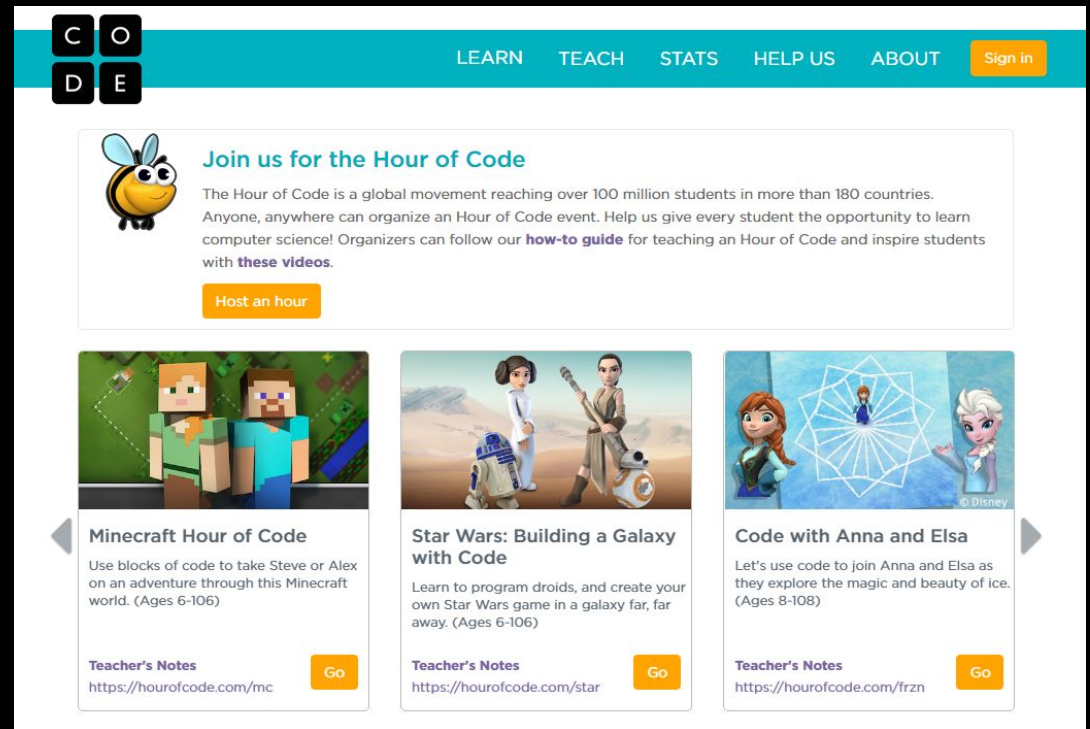


The screenshot shows the CodingBat website interface for Java practice. The page title is "CodingBat code practice" and the URL is "codingbat.com/java". The user is logged in as "mlewis@oconeeschools.org" with a "[log out]" link. The page features a navigation bar with "Java" and "Python" tabs, and a "New..." section. The main content area displays a grid of practice problems, each with a title, a star rating, and a brief description. The problems are:

- Warmup-1** (5 stars): Simple warmup problems to get started (solutions available). A green checkmark is visible in the bottom left corner.
- Warmup-2** (5 stars): Medium warmup string/array loops (solutions available). A green checkmark is visible in the bottom left corner.
- String-1** (5 stars): Basic string problems -- no loops. A green checkmark is visible in the bottom left corner.
- Array-1** (5 stars): Basic array problems -- no loops. A green checkmark is visible in the bottom left corner.
- Logic-1** (5 stars): Basic boolean logic puzzles -- if else && || !. A green checkmark is visible in the bottom left corner.
- Logic-2** (3 stars): Medium boolean logic puzzles -- if else && || !. A green checkmark is visible in the bottom left corner.
- String-2** (5 stars): Medium String problems -- 1 loop. A green checkmark is visible in the bottom left corner.
- String-3** (5 stars): Harder String problems -- 2 loops. A green checkmark is visible in the bottom left corner.
- Array-2** (5 stars): Medium array problems -- 1 loop. A green checkmark is visible in the bottom left corner.
- Array-3** (3 stars): Harder array problems -- 2 loops, more complex logic. A green checkmark is visible in the bottom left corner.
- Map-1** (2 stars): Basic Map get()/put(), no loops. A green checkmark is visible in the bottom left corner.
- Map-2** (4 stars): Maps with bulk data and loops. A green checkmark is visible in the bottom left corner.

What can I use in my AP Computer Science classroom?


- IDE – Integrated Development Environment – BlueJ, etc.
- Coding Bat - <http://codingbat.com/java>
- Code Academy – quick easy way to learn JavaScript
- Code.org and the Hour of Code – <https://code.org/learn>



The screenshot shows the homepage of the Hour of Code website. At the top, there is a navigation bar with the letters 'C O' and 'D E' in black boxes, and links for 'LEARN', 'TEACH', 'STATS', 'HELP US', 'ABOUT', and a 'Sign in' button. Below the navigation bar is a main section titled 'Join us for the Hour of Code' featuring a bee mascot. The text describes the global movement and provides a 'Host an hour' button. Below this are three featured activity cards: 'Minecraft Hour of Code', 'Star Wars: Building a Galaxy with Code', and 'Code with Anna and Elsa'. Each card includes an image, a title, a brief description, and a 'Go' button with a URL to the activity page.


C O
D E

LEARN TEACH STATS HELP US ABOUT Sign in

 **Join us for the Hour of Code**


The Hour of Code is a global movement reaching over 100 million students in more than 180 countries. Anyone, anywhere can organize an Hour of Code event. Help us give every student the opportunity to learn computer science! Organizers can follow our **how-to guide** for teaching an Hour of Code and inspire students with **these videos**.

Host an hour

 **Minecraft Hour of Code**


Use blocks of code to take Steve or Alex on an adventure through this Minecraft world. (Ages 6-106)

Teacher's Notes <https://hourofcode.com/mc> Go

 **Star Wars: Building a Galaxy with Code**

Learn to program droids, and create your own Star Wars game in a galaxy far, far away. (Ages 6-106)

Teacher's Notes <https://hourofcode.com/star> Go

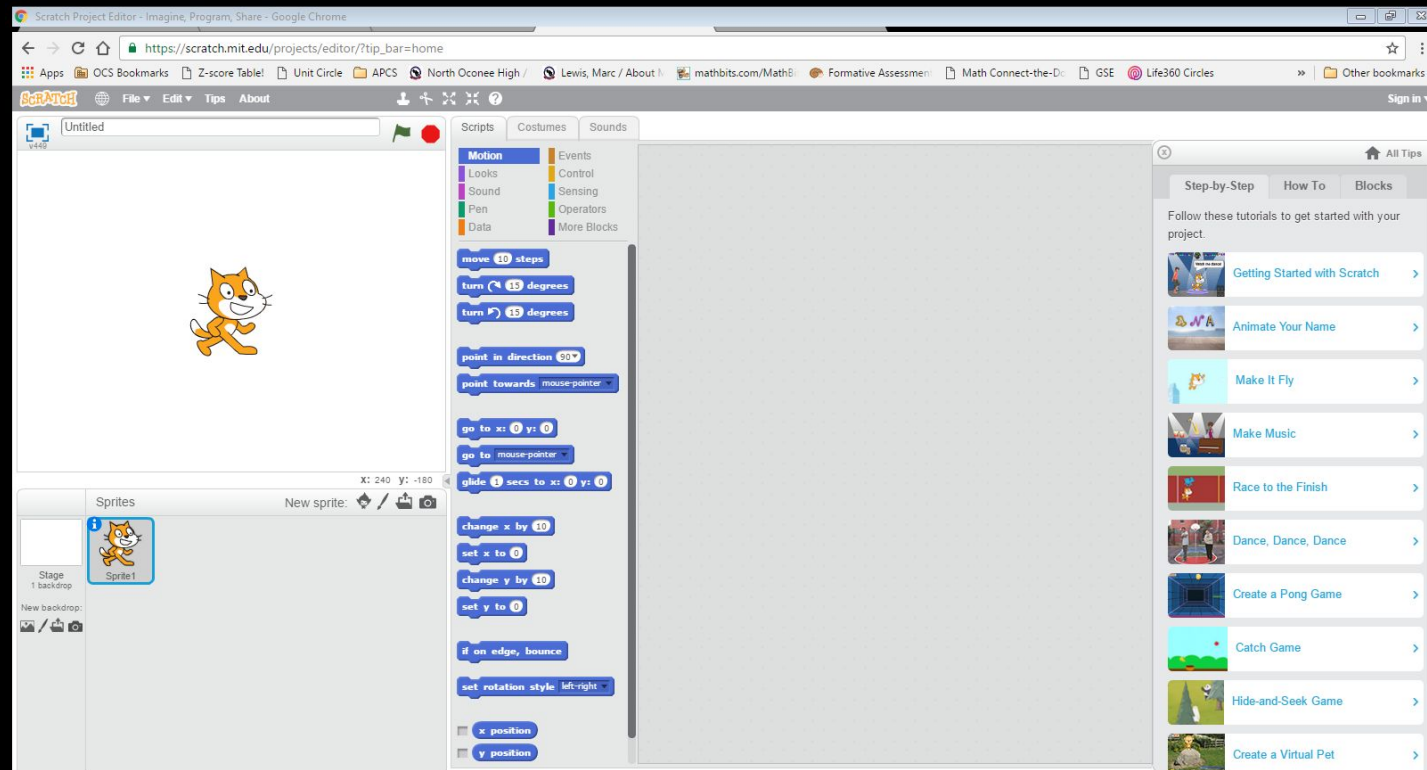
 **Code with Anna and Elsa**

Let's use code to join Anna and Elsa as they explore the magic and beauty of ice. (Ages 8-108)

Teacher's Notes <https://hourofcode.com/frzn> Go

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- Coding Bat - <http://codingbat.com/java>
- Code Academy – quick easy way to learn JavaScript
- Code.org and the Hour of Code – <https://code.org/learn>
- Scratch – <https://scratch.mit.edu>



What can I use in my AP Computer Science classroom?

- Tutorials Point - https://www.tutorialspoint.com/javaexamples/java_arrays.htm
- Scratch – https://scratch.mit.edu/projects/editor/?tip_bar=home
- CS Unplugged - <http://csunplugged.org/>
 - (Public Key Encryption Video)

- Two Kinds of STEM Certification –
 - Program
 - School
- Two Avenues of STEM Certification
 - Georgia DOE - <chrome-extension://mloajfnmjckfjbeeofcdaecbelnblden/http://stem.wpgadoe.org/wp-content/uploads/2016/06/STEM-Certification-Continuum-for-High-School.pdf>
 - AdvanceEd - chrome-extension://mloajfnmjckfjbeeofcdaecbelnblden/http://www.advanc-ed.org/sites/default/files/documents/stat-e-resources/STEM%20Standard_web-ready.pdf

Bonus Feature: One School's Journey to STEM Certification



- North Oconee High School elects to pursue STEM certification
- Several years of discussion as to how to approach
- Decision made to pursue Advance Ed certification
- Decision made to go with Program certification initially, with the goal to expand to whole school
- Cohort of 50 9th graders in 2017-2018
- Intention is to pursue aggressive AP course load with mandatory CTAE pathway completion
- Initially, STEM students will complete Agricultural pathway, with plans to increase CTAE fields as program develops
- Currently, math, science, and CTAE teachers are collaborating, with teachers from each field bringing classes together, taking turns in each other's rooms, etc.
- Document, Document, Document
- Goal is to apply over the summer of 2017 with review team visiting Fall semester, 2017
- If we become STEM certified, we get an additional teaching position, which is planned to be for an Engineering teacher

Bonus Feature: One School's Journey to STEM Certification

