

CHA Computer Science Scope and Sequence 2022-2023

This scope and sequence at CHA are based on the Computer Science Standards released by the Computer Science Teachers Association (CSTE) and the International Society for Technology in Education (ISTE) which are broken into the following categories and sub-categories:

CSTA Standards

Computing Systems

- Devices
- Hardware & Software
- Troubleshooting

Networks & the Internet

- Network Communication & Organization
- Cybersecurity

Data & Analysis

- Storage
- Collection, Visualization, & Transformation
- Inference & Models

Algorithms & Programming

- Algorithms
- Variables
- Control
- Modularity
- Program Development

Impacts of Computing

- Culture
- Social Interaction
- Safety, Law, & Ethics

ISTE Standards

Digital Citizenship

- Digital Footprint
- Online Behavior
- Intellectual Property
- Digital Privacy

Innovative Designer

- Design Process
- Design Constraints
- Prototypes
- Open-Ended Problems

Kindergarten Outcomes:

Keyboard Skills

- Can enter username and password to logon
- Can use the Shift key
- Can use Backspace
- Can use Enter Key
- Can use the Spacebar
- Practices keeping hands open and back straight when typing

Basic Computer Operations

- Can use Alpha & numeric keys
- Can log on and off the network
- Can open and close a program and a website.
- Can single and double click the mouse
- Can drag and drop using the mouse

Robotics

- Can use action bricks and switches to control robot
- Can predict robot's movement from reading code

Technology Terminology

- Mouse, Printer, Keyboard, Icon, Screen, Headphones, Start Menu, Robot, Code

Programs

- Paint – drawing program
- Computer Lab Website
- Brain Pop Junior – Internet Safety
- Tumble Books
- Kodable – Algorithms
- Microsoft Word
- Mouse & trackpad games on ABCYa
- Keyboard Cup Stacking
- LEGO Coding Express
- Typing Club

Digital Citizenship

- Can log on and off to Renaissance Place
- Keeps passwords private
- Observe how technology and the internet impact our daily lives

Teams

- Can mute/unmute their microphone
- Can use the raise/lower hand feature

First Grade Outcomes – all of the above plus:

Proper Use of Keyboard

- Can use the Caps Lock key
- Can use the Escape key
- Can use punctuation and symbol keys, . ? ! ' " + - =
- Continues to learn formal keyboarding positions

Basic Computer Operations

- Can click to place the cursor
- Can scroll
- Can print
- Has saved project to their personal folder

Robotics*

- Can follow instructions to build specified robot
- Can use block codes to control robot's movement, sound, and display

Technology Terminology

- CPU (Central Processing Unit), Speakers, Toolbar, Font, Desktop, Start Menu, Right Click Menu

Programs

- Microsoft Word
- Paint
- Microsoft PowerPoint
- Typing Club
- Renaissance Place – Accelerated Reader
- IXL Math
- Code.org

Digital Citizenship

- Brain Pop Jr. - Internet Safety
- Privacy Playground
- Can describe how technology impacts the world around us

Teams

- Can access and add content to Class Notebook
- Can utilize Dictation and Immersive Reader tools

Second Grade Outcomes – all of the above plus:

Proper Use of Keyboard

- Can use the Arrow keys
- Can use the Home key
- Can use Delete key
- Knows home row position and can find all alpha keys

Basic Computer Operations

- Can save to a specific folder on the network
- Can log onto AR independently
- Can type in a given address to access a website
- Can use links and Back button to navigate a website
- Can use the Windows key to find a program
- Can copy and paste from the internet
- Can choose a network printer

Robotics*

- Can describe how robots can help with real world problems
- Can modify robot to add or change functionality

Technology Terminology

- Mouse, Printer, Keyboard, Icon, Monitor, CPU, Speakers, CD / CD drive, Toolbar, Font, Folder, PC, Log-off, Machine, Address Bar

Programs

- Microsoft Word – spell check, paragraphs
- Typing Club
- PowerPoint - adding words and pictures, transitions, backgrounds
- Google Earth
- Renaissance Place – Accelerated Reader
- IXL Math
- Brain Pop Junior – Internet Safety, Blogs, Email
- Code.org

Digital Citizenship

- BrainPop Internet Safety

Teams

- Can share their screen
- Can independently submit assignments

Third Grade Outcomes – all of the above plus:

Technology Terminology

- Mouse, Printer, Keyboard, Icon, Monitor, CPU, Speakers, CD / CD drive, Toolbar (Kid Pix), Font, Folder, PC, Log-off, Machine, Address Bar, Virus, Transition, Animation, Engineering

Proper Use of Keyboard

- Can locate and use home row in touch typing
- Can use the Backspace Key
- Can use the Enter Key
- Can use the Shift Key
- Can use correct posture and hand placement
- Uses home row position and can find all alpha and numeric keys

Basic Computer Operations

- Can save to local and network drives
- Can locate files and programs by using the search feature
- Can print to networked printers
- Can use search engines on the Internet

Robotics*

- Can design and build a robot to address a specified problem

Programs

- Word – columns
- PowerPoint – add video, audio, and hyperlinks
- Publisher – State Research Project
- Flip
- Renaissance Place – Accelerated Reader (Librarian)
- IXL Math
- BrainPop - Digital Etiquette, Internet Search
- LEGO WeDo 2.0
- Scratch coding
- TinkerCad 3D Modeling

Digital Citizenship

- Can describe the difference between a credible and non-credible source
- Legally uses images within Fair Use boundaries

Teams

- Can work collaboratively with classmates within digital space

Fourth Grade Outcomes – all of the above plus:

Technology Terminology

- Mouse, Printer, Keyboard, Icon, Monitor, CPU, Speakers, CD / CD drive, Flash Drive, Toolbar (Kid Pix), Font, Folder, PC, Log-off, Machine, Address Bar, Virus, Transition, Animation, Surface, Troubleshooting

Proper Use of Keyboard

- Can use touch typing system on all keys
- Can show correct posture
- Can use the Tab Key
- Can use Alt + Tab

Basic Computer Operations

- Can save files to local and networked drives
- Can locate files on local and networked drives
- Can print to local and networked printers

Programs

- Typing Club
- Publisher – Spring Musical
- Excel
- Flip
- Stop Motion Studio – Lego Stop Motion Animations
- Renaissance Place – Accelerated Reader (Librarian)
- IXL Math
- Brain Pop – Online Safety, Information Privacy, Online Sources, Copyright
- Woof JS
- TinkerCad 3D Printing
- Way Back Machine

Internet Skills

- Understand and execute basic Internet searching techniques such as basic search terms and using a search engine
- Can use the Internet as a reference source, i.e., online dictionary, encyclopedia, and atlas sites.
- Copy/paste pictures from the Internet.

Digital Citizenship

- Can identify images legally allowed for use within Creative Commons licensing
- Can describe how programs and websites change over time

Teams

- Continues to use Teams as a place to store and access tools
- Continues to use Class Notebook to access class content and work in groups

Fifth Grade – all of the above plus:

Proper Use of Keyboard

- Windows, Page Up and Down Keys
- Keyboard Shortcuts
- Formal keyboarding positions

Proper Use of Surface Tablet

- Understands Acceptable Use Policy
- Care and Maintenance
- Problem Solving – restart, network access

Basic Computer Operations

- Can upload and copy files from USB, camera, or another device
- Can download files from the Internet

Programs

- Typing Club
- Microsoft Publisher – newsletters, adverts, brochures
- Microsoft Excel
- Microsoft Outlook
- Flip
- Windows Video Editor – Book Trailer
- Python Programming – Spanish Conjugations
- Renaissance Place – Accelerated Reader (Librarian)
- Interland Digital Citizenship
- Brain Pop – Cyberbullying

Internet Skills

- Understands the difference between a browser and a search engine and can execute Internet searching techniques such as "", AND, OR, NEAR
- Can discern the validity of Internet sites based on address, authorship, etc.
- Can use the Internet as a reference source, i.e., online dictionary, encyclopedia, and atlas sites.
- Copy/paste pictures from the Internet.

Terminology

- Wireless, Transition, Drag & Drop, Indent, Columns, Clip Art, Animation, Alignment, HTML, URL, domain name

Digital Citizenship

- Ask permission from the creator to use Copyrighted materials for a project

Teams

- Continues to use Teams as a place to store and access tools
- Continues to use Class Notebook to access class content and work in groups