



# Proposed K-8 Computer Science Standards

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**Research and  
Authoring**

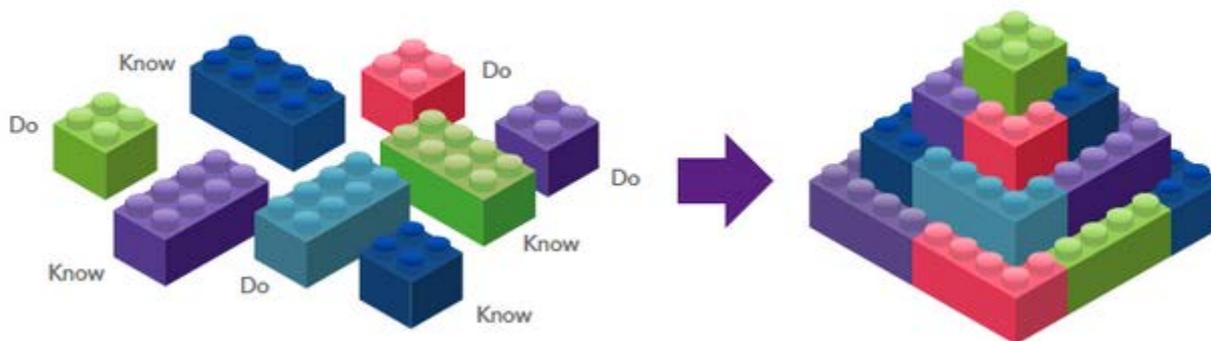
# K12 Computer Science Framework



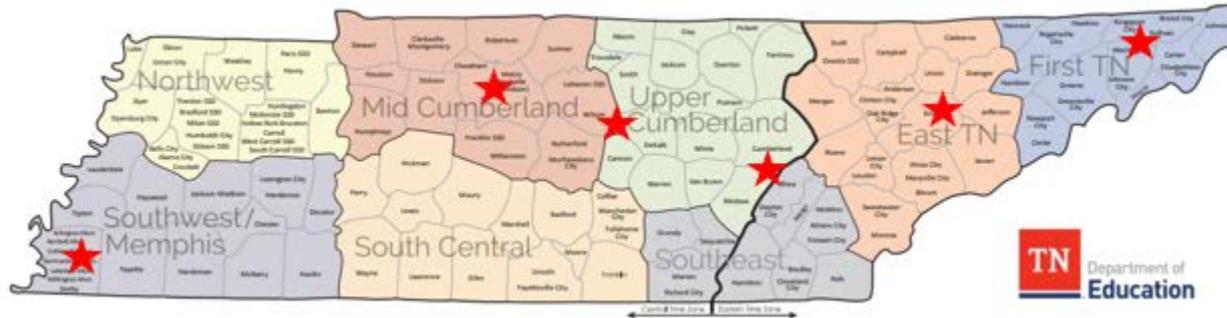
FRAMEWORK: KNOW, DO



STANDARDS: KNOW AND DO



# Standards Writers' Experience



- Classroom Teachers
- Library/Media Specialists
- Curriculum Technology Teacher
- Director of Instructional Technology
- Director of Computer Science

101 years general education and technology education experience  
(average = 16.83 years)

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# Computer Science Progression

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# Standards Model

## Elementary School: Foundational Phase

- Recognize the importance of safe and responsible technology practices
- Develop problem solving and critical thinking skills
- Build basic coding and programming skills

## Middle School: Exploration Phase

- Interact safely online and evaluate accuracy of online content
- Begin career exploration
- Develop computational thinking skills

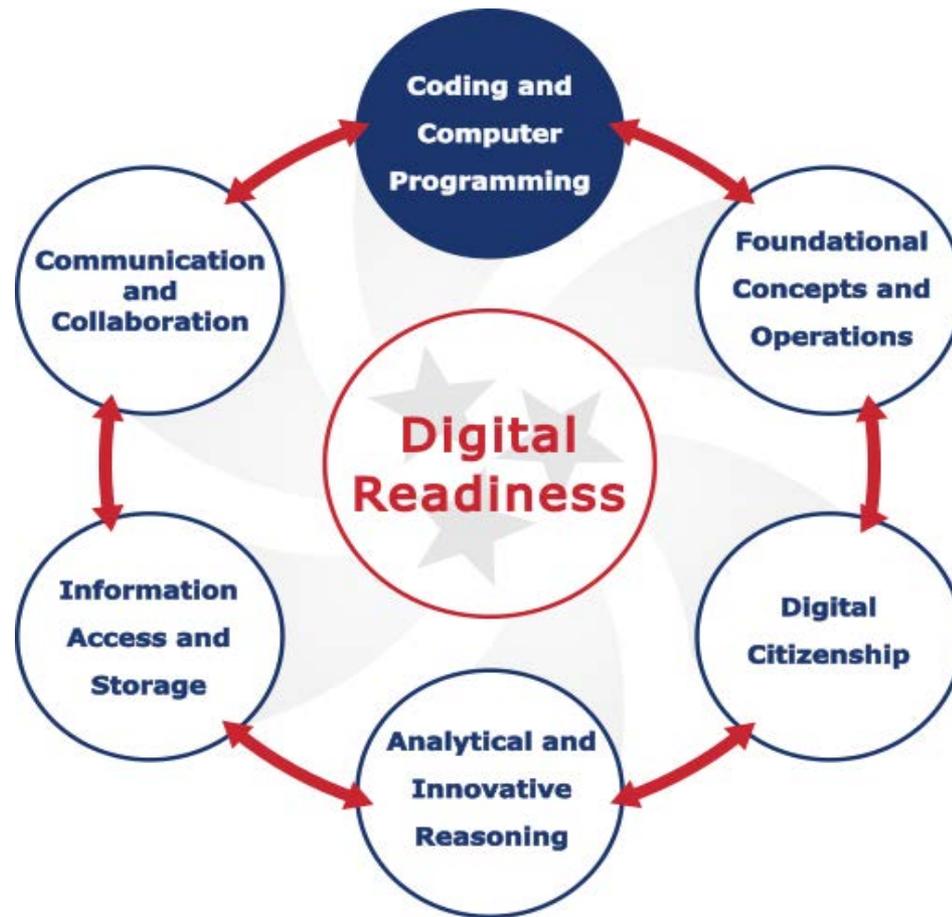
## High School: Opportunity Phase

- Understand personal, career, and societal impacts of technology
- Apply coding skills to solve real world problems
- Attain industry specific skills

# Current High School Computer Technology Courses

- Computer Applications
- Computer Literacy
- Computer Programming I
- Computer Programming II
- Interactive Multimedia Design
- AP Computer Science Principles

# K-8 Computer Science Strands



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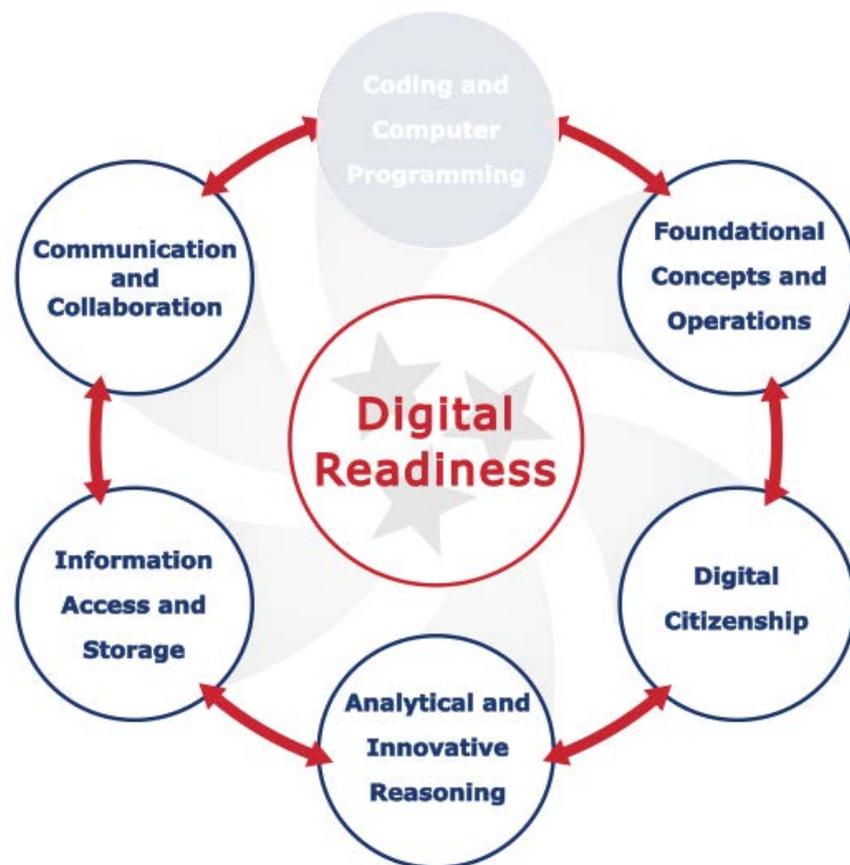
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# K-8 Embedded Digital Readiness Strands

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# Embedded Strands

- 5 Strands that are implicitly encountered in general education courses as part of normal classroom activities.
  - E.g. turning on computer and using inputs.
  - Saving files



# Structure & Progression of Embedded Strands

Computer Science Standards	Grade Level					Tennessee Academic Standards Connections Examples
	K	1-2	3-4	5-6	7-8	
<b>FCO.1</b> Demonstrate fundamental technology skills (e.g. turn on and login to device).	I	I	R	M	M	In progress
<b>FCO.2</b> Interact with a device using a pointing tool such as a mouse, tactile sensor, or other input.	I	R	R	M	M	In progress
<b>FCO.3</b> Navigate to applications and documents by using desktop icons, windows, and menus.	I	I	R	M	M	In progress
<b>FCO.4</b> Use age-appropriate online tools and resources (e.g. tutorial, assessment, web browser).	I	I	R	M	M	In progress
<b>FCO.5</b> Demonstrate fundamental keyboarding skills.	I	I	R	R	M	In progress
<b>FCO.6</b> Select and use appropriate word processing, spreadsheets, and multimedia applications.	I	I	R	R	M	In progress
<b>FCO.7</b> Use menu, tool bar, and editing functions (e.g. font/size/style/line spacing, margins, <u>spell</u> check) to format, edit, save, and print a document.	I	I	R	R	M	In progress
<b>FCO.8</b> Identify and solve routine hardware and software problems that occur during routine usage.	I	I	R	M	M	In progress

# Standard Exemplar

- DC.4 – Recognize and describe the potential risks and dangers associated with various forms of online communications (e.g., cell phones, social media, digital photos).

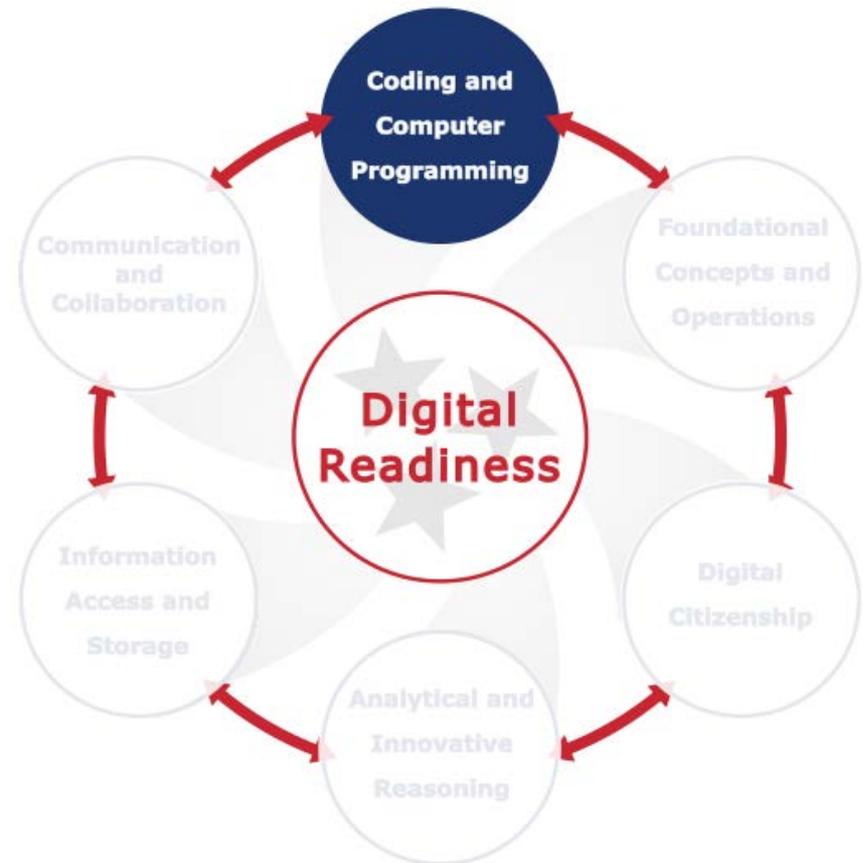


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# K-8 Coding and Computer Programming Strand

# Coding and Computer Programming Strand

- 6<sup>th</sup> CCP Strand of standards developed to prepare students for HS opportunity phase where they will utilize foundational skills in industry specific manner.



# Content and Authoring of CCP Standards

## PRACTICE

### RECOGNIZING AND DEFINING COMPUTATIONAL PROBLEMS

Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures. At any grade level, students should be able to break problems down into their component parts.



## CONCEPT

### ALGORITHMS AND PROGRAMMING

*Sub-concept: Variables*

Programming languages provide variables, which are used to store and modify data. The data type determines the values and operations that can be performed on that data.



## STANDARD

5.CCP.3

Decompose (break down) complex real-world problems in multiple ways that use variables to develop a solution or procedure based on data.



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Questions?



Department of  
**Education**

*Districts and schools in Tennessee will exemplify excellence and equity such that all students are equipped with the knowledge and skills to successfully embark on their chosen path in life.*

**Excellence | Optimism | Judgment | Courage | Teamwork**