

**PROPOSED MA DIGITAL  
LITERACY AND COMPUTER  
SCIENCE STANDARDS**

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# ANTICIPATED SCHEDULE

- Released for public comment - January 26, 2016
- Comment period - late January to mid-April 2016
- Review comments - April 2016
- Adoption vote - June 2016
- Final copyediting and publication - Late summer 2016



# KEY IDEAS

- DL standards were in need of update
- K-12 CS standards needed (new)
- Not tested
- 4 strands
  - Computing and Society (CAS)
  - Digital Tools and Collaboration (DTC)
  - Computing Systems (CS)
  - Computational Thinking (CT)
- Practices
- Complement other MA standards
- Grade spans (K-2, 3-5, 6-8, 9-12)
- Meant to help districts implement a K-12 DS/CS curriculum; defines minimum

# STANDARDS MODEL

## VISION

Meaningful participation in modern society requires fluency in the uses and impact of technology for living, learning, and working. People need to be able to apply knowledge, skills, and dispositions central to digital literacy and computer science to their chosen interests and career fields. They must become computational thinkers so they can create, apply, or change existing computer hardware, software, and devices to meet the computing and information needs of their life and work.



# STANDARDS MODEL

LEARNING PROGRESSION - WHAT SHOULD STUDENT KNOW AND BE ABLE TO DO?

Learning Progression				
Grade Spans	Strands			
K-2	<b>CAS: Computing and Society</b> a. Safety and Security b. Ethics and Laws c. Interpersonal and Societal Impact	<b>DTC: Digital Tools and Collaboration</b> a. Digital Tools b. Collaboration and Communication c. Research	<b>CS: Computing Systems</b> a. Computing Devices b. Human and Computer Partnerships c. Networks d. Services	<b>CT: Computational Thinking</b> a. Abstraction b. Algorithms c. Data d. Programming and Development e. Modeling and Simulation
3-5				
6-8				
9-12				
<b>Practices: Connecting, Creating, Abstracting, Analyzing, Communicating, Collaborating, and Research</b>				

# PRACTICES

## WHAT SHOULD IT LOOK LIKE?

- Practices:
  - Creating - creating artifacts, selecting methods, using algorithms, applying tools and tech, making ethical choices, iterating
  - Connecting - study effects of tech and make connections, distinguishing ethical and unethical practices
  - Abstracting - identifying, modeling, decomposition, classifying, identifying attributes
  - Analyzing - asking questions to define need, problem scoping, evaluating, improving
  - Communicating - choosing tools and media, audience, clear description, summarizing and describing solutions respecting intellectual property
  - Collaborating - working with others on projects, research, exchanging knowledge and feedback
  - Researching - problem definition, strategies, info types, evaluating sources, attribution, synthesize, thesis creation



# STANDARD FORMAT

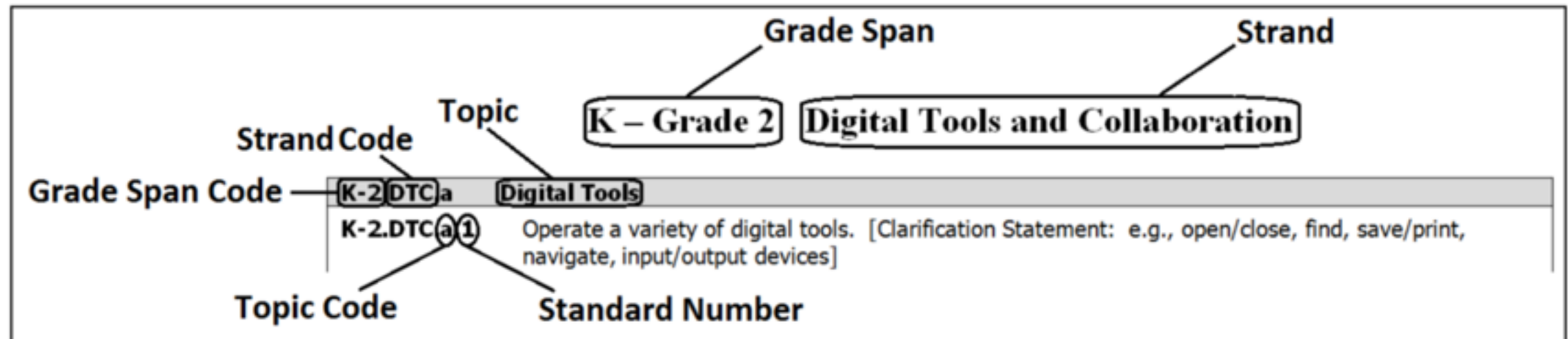
The coding system used for the standards identifies the strand and topic of the standard.

Grade Codes:	
Kindergarten to Grade 2	K-2
Grades 3 to 5	3-5
Grades 6 to 8	6-8
Grades 9 to 12	9-12

Strand Codes:	
Computing and Society	CAS
Digital Tools and Collaboration	DTC
Computing Systems	CS
Computational Thinking	CT

Topic Codes:
Topic codes are the letter of the topic.

Standard Number:
The Standard number is the numerical order of the standard and does not imply teaching order.



# EXERCISE

- Look through a grade level or strand of interest with a partner
- Report back to the whole group
  - Appropriate level?
  - Clear?
  - Reasonable to implement?
  - Complete?
  - Accurate?
  - Other?



# THOUGHTS ON PROCESS

- We did look at existing standards first
- Lots of interesting, distinguished, and accomplished people with very different viewpoints
- Not easy!
- Not perfect!

# RESOURCES/FOR MORE INFO

- See last page of standards
- DESE web site
- <http://www.doe.mass.edu/boe/docs/fy2016/2016-01/>
- [johnheffernan@verizon.net](mailto:johnheffernan@verizon.net)
- <http://www.kidsengineer.com/>