



Science, Technology, Engineering and Mathematics (STEM) Education

What's new in the state of NH

Nathaniel.greene@doe.nh.gov

Statewide Initiatives and Priorities

- Computer Science Standards
- New Computer Science Teacher Certification
- Title IV Part A Funding for Districts
- Next Generation Science Standards (NGSS)
- NH State Assessment System (NH SAS)
- NH STEM ListServ

State-level policy makes a difference

- Key policy areas:
 - Educator certification, preparation, and professional learning
 - Curriculum, instruction, assessment
- Some things good policy can help with:
 - Establishing CS as a Core K-12 Subject Area.
 - Getting Reliable Data and Using it to Make Improvements
 - Growing the Pool of CS Teachers

With good policy, we can leverage state and federal funds to help advance K-12 Computer Science.

Ref: [State of the States: CS Education Policy Report](#)

CS Academic Standards

Background and Development

- National precedent:
 - Since 2014, a number of states have adopted K-12 Computer Science Standards (currently 18)
- NH status
 - NH has CTE program standards in the Information Technology cluster.
 - But we need CS standards covering elementary, middle, and high school
- Process
 - Presentations to NH SBOE
 - Subcommittee formation
 - Draft development

CS Educator Certification

Background & adoption Process

- NH used to have "Computer Technology Educator"
- This was changed to "Technology Integrator".
 - Since the Tech Integrator is not a classroom teacher, this left a void in policy
- PSB recommended creation of new credential
- Subcommittee...
 - Aligned with latest Praxis exam for Secondary Computer Science Education
- Adopted...

Comparison with other areas

<https://www.education.nh.gov/instruction/computer-science/>

- ***Education Technology Integrator*** works with students and teachers to integrate digital literacy and educational technology into other content areas.
- ***Comprehensive Technology Educator*** facilitates learning of engineering design and development process and knowledge of different types of technologies. This includes (but is not limited to) Industrial Arts.
- ***Computer Science Educator*** facilitates learning of theoretical and applied aspects of computing and information technology, including (but not limited to) computer programming (i.e. coding).
- See also:
 - http://www.gencourt.state.nh.us/rules/state_agencies/ed500.html

Who teaches what?

Computer science educator	Comprehensive business educator
Teaches concepts of computing and computers, including: <ul style="list-style-type: none">● Computing systems● Networks & the internet● Algorithms & programming● Data & analysis● Impacts of computing	Teaches business computer applications, including: <ul style="list-style-type: none">● Productivity software *● Web-based communication / collaboration software *
Science or comprehensive technology (engineering) teacher	Arts educator
Teaches computational science & engineering, including: <ul style="list-style-type: none">● Modeling & simulation● Drafting & CAD software● GIS software	Teaches design and media arts, including: <ul style="list-style-type: none">● Graphic design● Web design● Multimedia production

Key points

- Educators teaching computer science as a **major assignment** (50% or more of teaching load) should be certified in computer science.
- Educators with both classroom **educator and integrator** responsibilities should hold the endorsement that reflects the majority of their responsibilities.
- Administrators should correctly identify CS courses in information systems.
- Administrators should make efforts to employ, especially at the secondary level, a minimum of one certified CS educator, or upskill and certify a current employee.

Computer Science Education
Laws & Policies
HB 1674, NH ED 306

HB 1674

<https://legiscan.com/NH/text/HB1674/id/1656822> -

I. [...] the specific criteria and substantive educational program that deliver the opportunity for an adequate education shall be defined and identified as the school approval standards in the following areas:

[...]

(i) ~~[Technology education, and information and communication technologies]~~ ***Engineering and technologies.***

(j) Computer science and digital literacy.

NH ED 306

The RSA's relative to adequate public education are implemented in the ED 306 rules: http://www.gencourt.state.nh.us/rules/state_agencies/ed300.html

PART Ed 306 MINIMUM STANDARDS FOR PUBLIC SCHOOL APPROVAL

306.26: Kindergarten Through Grade 8

306.27: High School

306.42: Information and Communication Technologies Program

306.47: Technology and Engineering Program

Potential revisions

PART Ed 306 MINIMUM STANDARDS FOR PUBLIC SCHOOL APPROVAL

306.42: ~~Information and Communication Technologies~~ **Digital Literacy** Program

Integrated in K-12

~~½ credit for HS program~~

306.47: Technology and Engineering Program

E.g. Biotech, Energy, and Production Technologies

Focus on Engineering Design & Development

Integrated with Sciences in ES / MS

~~4 credits~~ 2 ½ credits for HS program**

NEW Computer Science Program

Integrated in ES / MS

2 credits for HS

program**

**** Interdisciplinary courses (e.g. robotics) may satisfy either one program requirement OR another.**

Procedures & Timelines

Procedures / Timelines

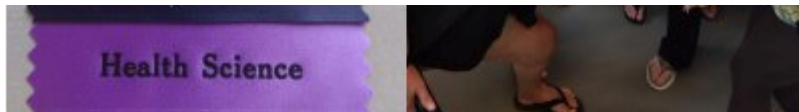
- If / when signed into law, HB 1674 will take effect 60 days after passage.
- The Department of Education will determine appropriate timelines:
 - for revising the ED 306 Rules.
 - for Local Education Agencies to implement the revised rules.
- The NH CS Standards and ED 306 Rules revisions will go before the NH State Board of Education to request recommendation for adoption.
 - Please check the agenda regularly to find out when this will occur.
- The ED 306 rules will be reviewed by [JLCAR](#).

Title IV Part A Funding for Districts

- Available to all districts in the state as a formula grant (similar to Title I or Title II). Minimum of \$10,000 funding.
- Utilization of a comprehensive needs assessment, such as the Future Ready Framework
- Grant activities must focus on one of three areas (or a combination):
 - Access to a well-rounded education
 - Improved school conditions for student learning
 - Improved use of technology to improve academic achievement and digital literacy

More information on the grant can be found at www.education.nh.gov, including comprehensive technical assistance and an online tutorial

NH State Assessment System



More than 130 educators attended the New Hampshire Career & Technical Education Conference 2018 at Plymouth State University in August to network and learn new skills to serve nearly 10,000 career and technical education students in the state.

[Read more about the summer conference here.](#)



NH SAS in Science

- Students are assessed in Grades 5, 8 and 11. (PACE districts are assessed in NH SAS in Grade 5 and 11 this year, and just Grade 11 the following years)
- The NH SAS is aligned to the Next Generation Science Standards and built on a foundation of science process and literacy skills as well as phenomena-based science education practices.
- Districts have access to the statewide SAS Science results, in addition to their own district data by logging in to the statewide assessment portal.

For more information contact cathleen.white@doe.nh.gov

NH STEM ListServ

- Google Group for educators and administrators in NH with a focus on state-level events, news, resources, policies, and initiatives related to STEM Education in NH

To Join the NH STEM ListServ, visit www.education.nh.gov/instruction/stem

and click on the link at the top of the page to add your email address to the Group.