

“Science—and therefore science education—is central to the lives of all Americans.

A high-quality science education means that students will develop an in-depth understanding of content and develop key skills—communication, collaboration, inquiry, problem solving, and flexibility—that will serve them throughout their educational and professional lives.”

<https://www.nextgenscience.org/>



Vision of A Graduate: Competency based reimaging of mission statement

Student Learning practices maximize the impact of learning for each student. Learners focus on the understandings, and dispositions necessary to prepare learners for their future. Students are assured consistent learning outcomes through a defined curricular experience and have the opportunity to demonstrate their skills and knowledge in a variety of creative ways. Students actively participate in authentic learning experiences while practicing the skills and habits of mind to take ownership of, their learning.



1. Align the Science Curriculum with the Next Generation

Disciplinary Core Ideas: Life Science, Earth Science, Physical Science, and Engineering, Technology, and the Application of Science

Crosscutting Concepts: Patterns, Cause & Effect, Scale, proportion & quantity, Systems & system models, Energy & matter, Structure & function, Stability & change

Science & Engineering Practices: Asking questions, Developing & using models, Planning & carrying out investigations, Analyzing & interpreting data, Using mathematics & computational thinking, Constructing explanations and designing solutions, Engaging in argument

Physical Science & Biology are graduation requirements & prerequisites for all other science courses

Students may double up sciences to take more electives/AP Courses. Some students would prefer to skip Physical Science in order to take additional higher level courses.

8th grade will have a greater emphasis on Physical Science standards moving forward.

https://docs.google.com/document/d/1hWSCJTArQKFPWoI9Cylji9xRBrSWB2o4oQllf3_ehQ/edit

1. Conceptual Progressions Model: The grade-

9th Grade	10th & 11th Grades	12th Grades
Biology	Physical Science Elective Chemistry Physics	Electives & AP Courses

The proposed high school course sequence aligns with the new middle school progression.

Biology is a common experience for all students and meets the NH state requirement, while incorporating Earth Science standards.

Students have choice while meeting the NH state physical science requirement. This sequence allows students to choose physical science courses based on their interests.

All students will have access to all NGSS Performance Expectations. This is a pathway to implement the NGSS Modified Domain model, while giving student choice.

There will be more opportunities for students to take engaging and impactful science electives and increase Science and Engineering Practice proficiency.

Improving Science Proficiency:

North SAS Testing Using TIDE

2017-2018 – 225 tested 43% proficient (NH 41% proficient)

2018-19 – 164 tested 41% proficient (NH 41% proficient)

2019-2020 – No testing COVID-19

Note: approximately 400 students should take the test each year, many have opted out

Next Generation Science Standards

Disciplinary Core Ideas

Crosscutting Concepts

Science & Engineering Practices: Asking questions, Developing & using models, Planning & carrying out investigations, Analyzing & interpreting data, Using mathematics & computational thinking, Constructing explanations and designing solutions, Engaging in argument from evidence, Obtaining, evaluating, & communicating information



Subject Area	Grad Requirement (Credits)	Courses that meet to fulfill requirement
<p>Graphic Design 1 or 2 requirement, the Art or ICT requirement. All AEC Education requirements:</p>	<p>Art Education</p>	<p>0 Drama; all MLIS courses meet</p>
	<p>Information and</p>	
<p>3</p>		
<p>Physical Science</p>		<p>Biological Science</p>
<p>Education.</p>		<p>Biology is required for</p>
<p>Economics and US History are required. AP</p>		<p>World Studies meets</p>
<p>meets world Studies requirements. AP US Government</p>		<p>meets US</p>
<p>meets Economics requirements. AP US History meets US History</p>		<p>Social Studies 3.</p>
<p>requirements.</p>		<p>Physical Education 1</p>
<p>Sports Education is required. PE for Life or Personal Fitness Course also</p>		<p>Health</p>

Graduating Students in 2021 at Nashua High School South

3+ Science Classes: 289 $289/363=$
79.6%

2 Science Classes: 74

Graduating Students in 2021 at Nashua High School North

3+ Science Classes: 242 $242/310=$
78.1%

2 Science Classes: 68



1. **Biological Science:** Biology is required for graduation.
2. **Physical Science:** Physical Science, Chemistry, Physics or AP Physics meet the physical science requirement.
3. **Science Experience:** Students must have an additional science experience credit for graduation.

Science Department Courses

Anatomy & Physiology
Astronomy
Chemistry
Contemporary Issues in Science
ELL Science
Environmental Science
Forensic Science
Physical Science
Physics
Plant Science
Zoology
AP Biology
AP Chemistry
AP Environmental Science
AP Physics 1 & 2

CTE Courses

Intro to Engineering
Principles of Engineering
Manufacturing, Eng., Design & Development
Health Sciences
Biotechnology & Biomedical Sciences
Marine Robotics
VEX Robotics
CADD

1. Change graduation requirements for the Class of 2027.
1. Update course sequence and appropriate course prerequisites to align with the new course progression for the 2023-24 Program of Studies.
1. Continue NGSS curriculum work and updating curriculum documents for Biology, Physical Science, Chemistry, and Physics. Update course descriptions to reflect curriculum changes..
1. Modify curriculum for elective science department courses to align with NGSS.
1. Create new science electives based on student interest, including broadening earth science opportunities.

Course Sequence Draft 2023

Program of Studies Science Changes for
2023-24