

## FAQs Pertaining to BCPS, specifically the Secondary Science Instructional Program

### **Q: How have science requirements changed in Baltimore County Public Schools?**

On June 25, 2013, Maryland adopted the [Next Generation Science Standards](#) (NGSS). Since that time, the Baltimore County Public Schools (BCPS) Office of Science has been working on *new* curricula aligned to our *new* science standards as well as professional learning for teachers to support the transition to NGSS.



The NGSS are composed of [three dimensions](#): Science and Engineering Practices, Crosscutting Concepts, and Disciplinary Core Ideas. The Disciplinary Core Ideas are organized into three science content domains – Earth and Space Sciences, Life Sciences, and Physical Sciences. At the high school level, BCPS selected the [Domains Model](#) to implement NGSS. New courses and curricula were developed to address each of the three science content domains. These new courses are titled Earth Systems, Living Systems and Integrated Physics and Chemistry (IPC). The BCPS NGSS implementation plan and course designs were approved by the Academic Team and the Chief Academic Officer in 2014.

BCPS now has a required high school science course sequence, much like the sequences that exist for English language arts, mathematics, social studies, and other academic areas. This sequence ensures that *all students* are exposed to *all NGSS standards*, guaranteeing a rigorous, well-rounded science education that prepares students to be college-and-career ready after high school. BCPS’s course sequence and NGSS implementation plan meet new science instruction graduation requirements. Per the Code of Maryland Regulations ([COMAR](#)) and beginning with the Freshman Class of 2017-2018 (Cohort 2021) in BCPS, *all* students will participate in a comprehensive instructional program that includes the NGSS Science and Engineering Practices and *all* science content domains (Earth and Space Sciences, Life Sciences, and Physical Sciences).

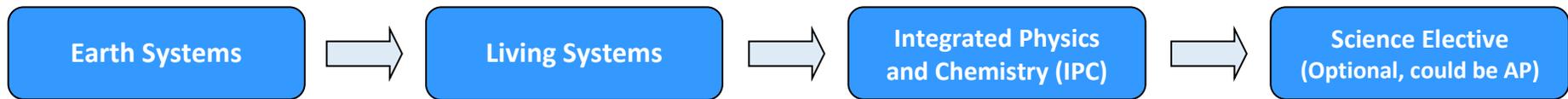
The BCPS NGSS Course Sequence (see graphic below) represents *possible* high school science course pathways that meet MSDE graduation requirements. The required sequence of Earth Systems, Living Systems and Integrated Physics and Chemistry (IPC), allows for easier mobility in and out of various academic levels. Students must still earn three credits of science to graduate, one of which must be Biology or Living Systems. For example, a student could meet the NGSS COMAR requirement by taking Earth Systems in 9<sup>th</sup> grade, Living Systems in 10<sup>th</sup> grade, and IPC in 11<sup>th</sup> grade. If a student chooses to take Chemistry and/or Physics, that student needs to take **both** Chemistry *and* Physics or Chemistry and IPC to meet the “all standards” COMAR requirement.

### **Q: How are the BCPS NGSS courses different?**

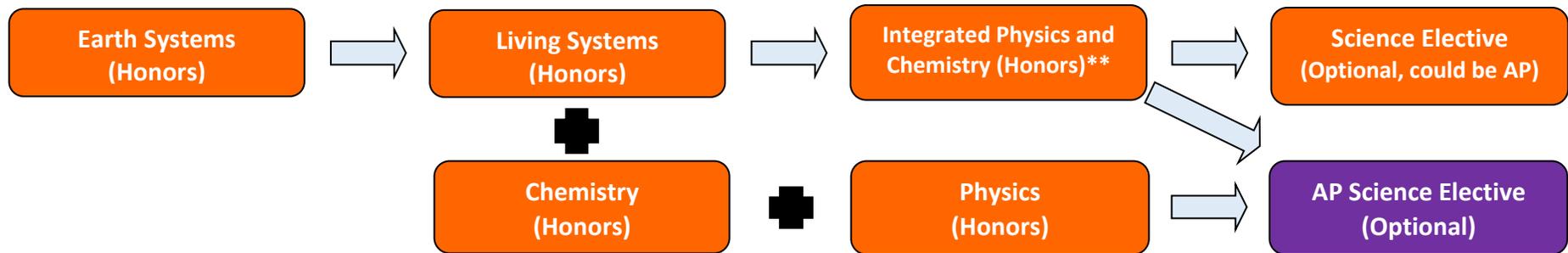
The new middle and high school science courses are aligned to the NGSS. While the “what” of the courses is similar to previous curricula, the “how” is very different. To meet these rigorous standards, teachers will need to teach in a way that reflects learning across all three dimensions. Curriculum summative assessments are performance-based, asking students to demonstrate higher-level thinking and application of science concepts to authentic situations. Some tasks include more emphasis on the engineering design process. To see examples of culminating events (end-of-unit assessments) from the new middle and high school courses, follow the links to the Middle School Curriculum Design and High School NGSS Curriculum Design documents on our the [Secondary Science homepage](#).

## NGSS HIGH SCHOOL SCIENCE SEQUENCE – Effective 2017-2018\*

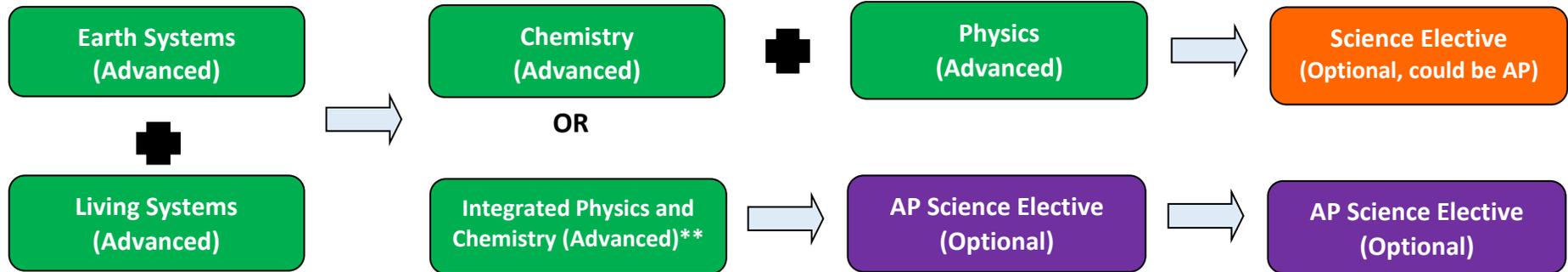
### Standard Course Sequence



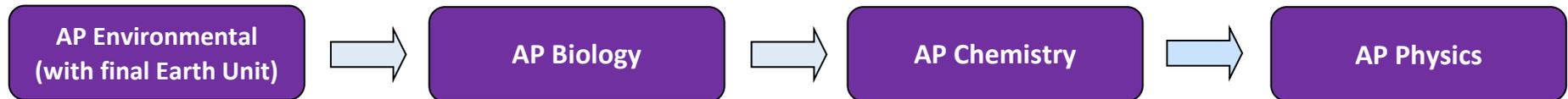
### Honors Course Sequence



### Advanced Academic (Gifted and Talented) Course Sequence



### Advanced Placement Course Sequence



\*Per COMAR, all students must take High School level science classes that meet ALL NGSS Standards (Earth and Space Sciences, Life Sciences, and Physical Sciences (Chemistry and Physics)); for BCPS, this began with the Freshman Class of 2017-2018 (Cohort 2021); not all sequencing options are identified; decisions about which NGSS course levels are offered as well as non-NGSS course offerings, including AP courses and science electives, will be made by the school's Administrative team; additional AP science course options may be available

***Q: How are the academic levels of the NGSS courses different?***

NGSS course embedded curriculum assessments and resources are differentiated to meet the needs of diverse learners. The Office of Science continues to work with and incorporate feedback from our Advanced Academics, Special Education, and ESOL colleagues to ensure that our new curricula appropriately support and challenge all of our BCPS science students.

***Q: What about Advanced Placement courses and other science electives?***

The BCPS NGSS Course Sequence (see above) offers opportunities for students to participate in Advance Placement and other BCPS science electives. Science elective course offerings, including AP courses, are decided on a school-by-school basis to account for student interest and staffing considerations. Some students may choose to take two credits of science in their 9<sup>th</sup> and/or 10<sup>th</sup> grade year in order to access additional science courses in their 11<sup>th</sup> and/or 12<sup>th</sup> grade year(s).

***Q: What about the Biology HSA?***

The last administrations of the Biology HSA were during the 2016-2017 school year. The Maryland State Department of Education (MSDE) has contracted with a vendor to develop new science assessments for 5<sup>th</sup>, 8<sup>th</sup>, and 10<sup>th</sup>-11<sup>th</sup> grades. The new assessment is called the Maryland Integrated Science Assessment (MISA) and will evaluate students on all [three dimensions](#) of the NGSS, including *all* NGSS content domains (Earth and Space Sciences, Life Sciences, and Physical Sciences). The Middle School MISA was field-tested in the Spring of 2017 and is fully operational this year. Federal accountability for Grade 8 MISA scores commences with the 2018-2017 school year. The High School MISA will be field-tested in the Spring of 2018. Graduation requirements related to the MISA are still being determined by MSDE.

Students graduating in 2017-2018 are required to either pass the Biology HSA, meet the HSA combined score options, complete Biology Bridge Plan projects (during or before the 2016-17 school year), take the Biology HSA in January or May of 2017, or participate in the field test of the new high school MISA in January or May, 2018. These regulations were adopted by the Maryland State Board of Education on October 25, 2016 (COMAR 13A.03.02).

***Q: What science courses does my child/student take if they are already in high school?***

The new science course sequence and graduation requirements apply only students entering high school in the 2017-2018 school year and later. Current 10<sup>th</sup>, 11<sup>th</sup>, and 12<sup>th</sup> graders must still earn 3 credits in science, one of which must be either Biology or the new Living Systems course.

***Q: Who should I contact if I have additional questions?***

The following resource provides background information about the Next Generation Science Standards (NGSS) and how they are different from previous National Science Standards

<http://www.nextgenscience.org/faqs##4.2>.

*Additional NGSS Resources*

[NGSS Fact Sheet](#)

[How Science Education Will Change with the NGSS](#)

[Science Education Needs an Update](#)

[NGSS Introduction and Overview](#)

[Video: Importance of the NGSS](#)

[Video: NGSS: A Vision for K-12 Science Education](#)

[The National Science Teachers Association Position Statement on the NGSS](#)

*For questions about the BCPS Science Course Sequence and school-specific offerings, please start by contacting your school's Science Department Chair and/or School Counseling Chair. You may also email the Office of Science at [officeofscience@bcps.org](mailto:officeofscience@bcps.org) or call us at 443-809-4251.*