Recommended Science Flowchart

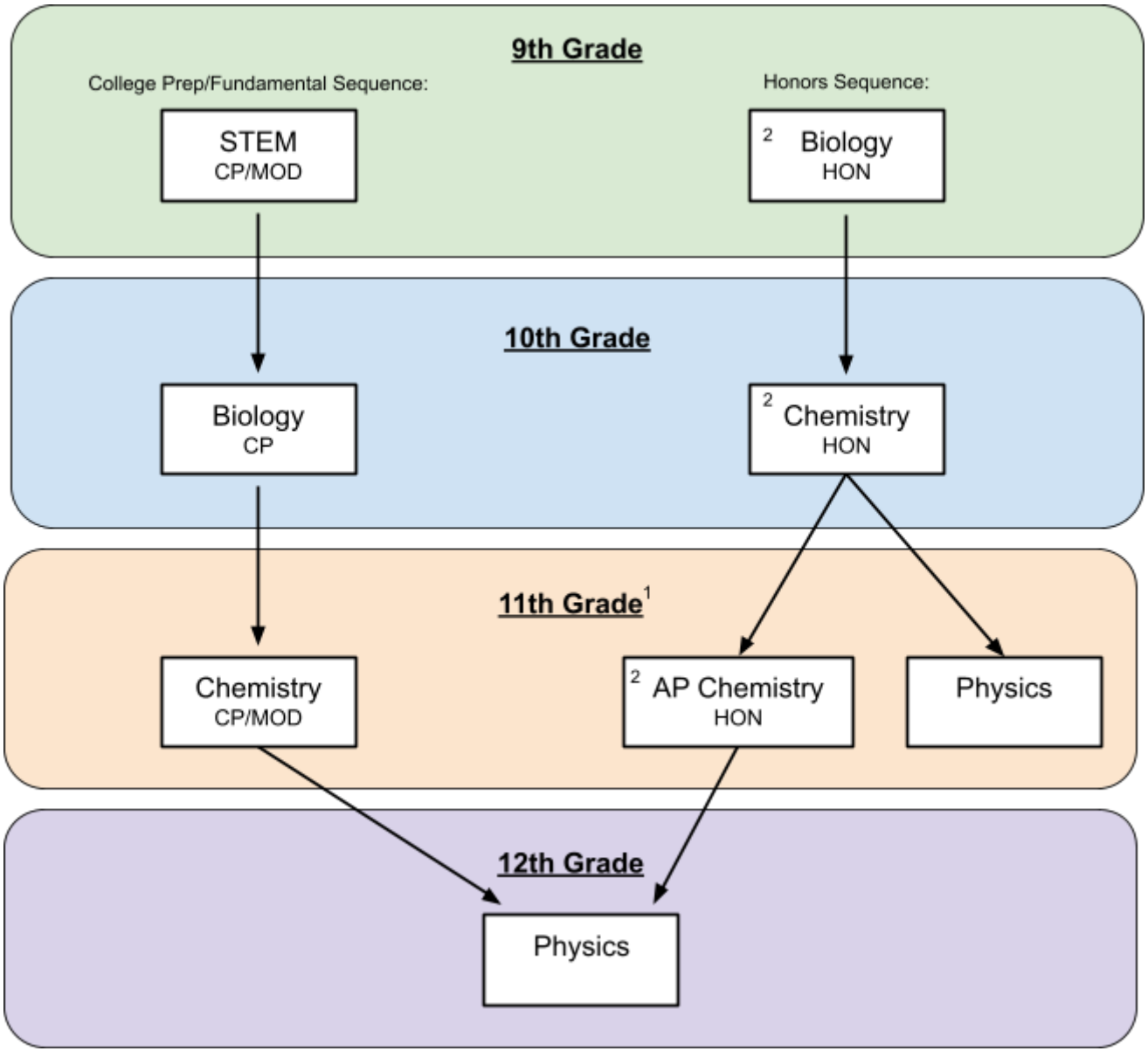
All New Jersey public school students must successfully complete a minimum of three years (15 credits) of science as a graduation requirement with at least 5 credits in each area: laboratory biology/life science, laboratory/inquiry-based science course, laboratory/inquiry-based science course. Additionally, students are required to take a science state assessment during 11th grade. A flowchart is provided to assist students and parents in planning for a high school science course sequence.

1: An 11th grade science state assessment is federally required.

2: RCBC Cap Course credits can be earned by taking this course.

Honors Chemistry and AP Chemistry are designed to be taken sequentially.

HON: Honors (+1 quality point in GPA)
CP: College Prep
MOD: Modified



Science Course Descriptions:

STEM (CP/PR)
5 credits/1 semester
STEM focuses on inquiry driven lab activities that interweave the four disciplines of science, technology, engineering, and mathematics. Topics covered in this course include formation of the universe, geologic timelines, volcanic eruptions, earthquakes, climate change, renewable energies, sustainability, and human's interactions with the world. *This course is designed for 9th grade students.*

Biology (CP/PR)
5 credits/1 semester
This course focuses on hands-on, laboratory-based instruction. Core topics include cell biology, molecular biology, genetics, ecology, evolution and biodiversity. Processes of science, including experimental design, methods of data collection, and data analysis are all stressed in the course. *This course is designed for 10th grade students following successful completion of STEM.*

Chemistry (CP/PR)
5 credits/1 semester
Chemistry is a lab-intensive, college preparatory course focused on understanding chemical principles and their applications. Topics covered include atomic and molecular theory, concepts in bonding, periodic law, states of matter and solutions, mathematical calculations in chemistry, writing balanced chemical reactions and equilibrium, and nuclear reactions. Safety and laboratory skills will be developed during the course and safe laboratory behavior will be practiced at all times. *This course is designed for 11th grade students following successful completion of Biology.*

Physics
5 credits/1 semester
Physics is a science that studies matter and energy and their interactions. Through guided, cooperative, and independent inquiry-based activities, students apply their understanding of kinematics, energy, and waves by designing experiments, evaluating data, and engineering solutions to solve real-world problems. Additionally, physics requires students to effectively communicate their claims and evidence to a variety of audiences. It exposes students to additional college and career opportunities in science, technology, engineering and math (STEM) fields. These skills and opportunities will make our students productive citizens in the 21st century. *This course is designed for 12th grade students after successful competition of prior coursework in algebra and science.*

Quality points for the following honors level courses will gain one additional point for each grade in the GPA calculation with the exception of failing grades (AP will gain two additional points). Success in these courses requires that the student demonstrates above average participation, initiative, and achievement in prior coursework.

Honors Biology

5 credits/1 semester

This course focuses on hands-on, laboratory-based instruction. Core topics include cell biology, molecular biology, genetics, ecology, evolution and biodiversity. Processes of science, including experimental design, methods of data collection, and data analysis are all stressed in the course. *This course is designed for 9th grade students who minimally plan to continue on with Honors Chemistry and Physics.*

Honors Chemistry

5 credits/1 semester

Honors Chemistry is a lab-intensive, college preparatory course focused on understanding chemical principles and their applications. Topics covered include atomic and molecular theory, concepts in bonding, periodic law, states of matter and solutions, mathematical calculations in chemistry, writing balanced chemical reactions and equilibrium, and nuclear reactions. Additional focus has been placed on connections to Earth and Space Science, as well as incorporating Engineering Practices into the Chemistry curriculum framework. Safety and laboratory skills will be developed during the course and safe laboratory behavior will be practiced at all times. *This course has been designed to prepare students who may want to take AP Chemistry.*

AP Chemistry

5 credits/1.5 semesters

The purpose of the course is to provide students with a collegiate level academic experience in chemistry within the high school setting. It is also to foster and grow self-sustaining, independent learners. This course is structured around the six big ideas articulated in the AP chemistry curriculum framework provided by the College Board. A special emphasis will be placed on the seven science practices, which capture important aspects of the work that scientists engage in, with learning objectives that combine content with inquiry and reasoning skills. A minimum of 25 percent of instructional time is dedicated to the lab activities. In addition, students will have to spend at least five hours a week studying outside of class. *AP Chemistry is open to all students that have completed a year of chemistry who wish to take part in a rigorous and academically challenging course. It is recommended that students have completed Chemistry or Honors Chemistry with an A and Algebra II with a B or better, or have the recommendation of their previous Chemistry teacher AND the instructor. AP Chemistry requires an additional marking period beyond the semester that is online and asynchronous.*