

# Skyline High School

Science Department Course Offerings for 2025-26

**Presented by: Steve Gillespie, Department Chair**

*Currently teaching: Science of Forensics & IB Biology teacher*

*Past: General Bio, Environmental Systems, Lab Methods*

[gillespies@issaquah.wednet.edu](mailto:gillespies@issaquah.wednet.edu)

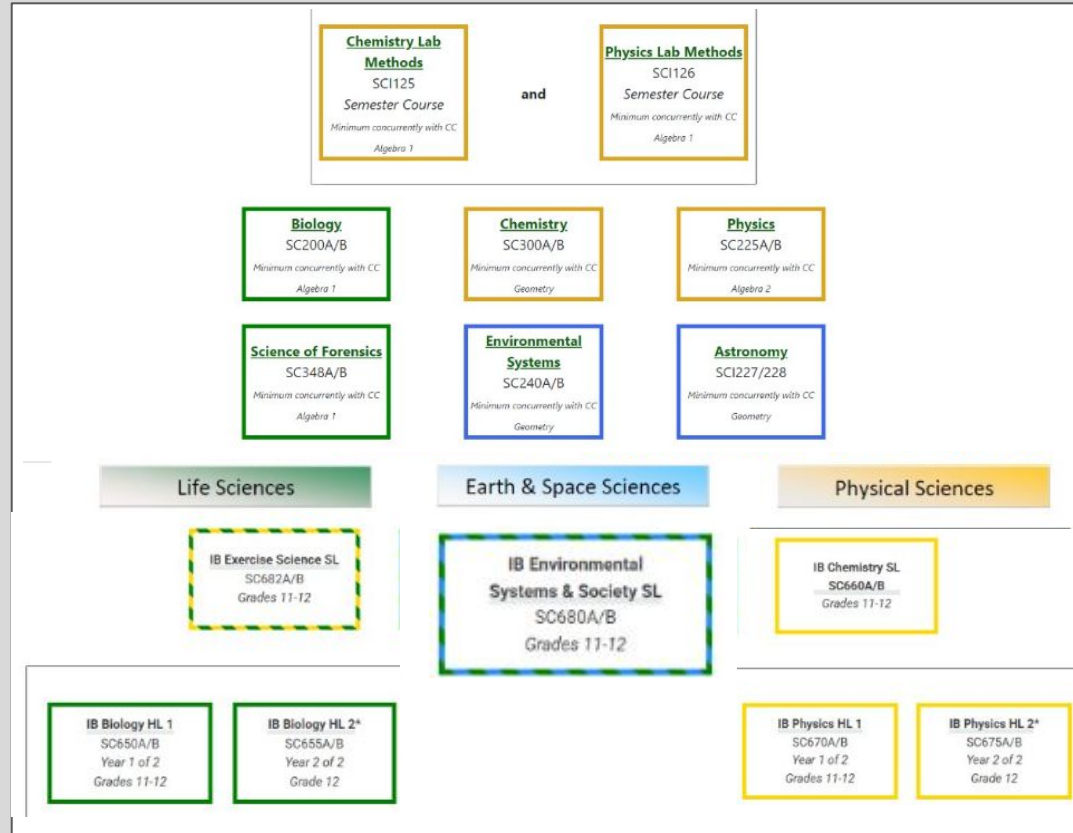
# High School Graduation Requirements (for science)

## Three (3.0) credits of science

- Two (2.0) of these credits must be **lab sciences**

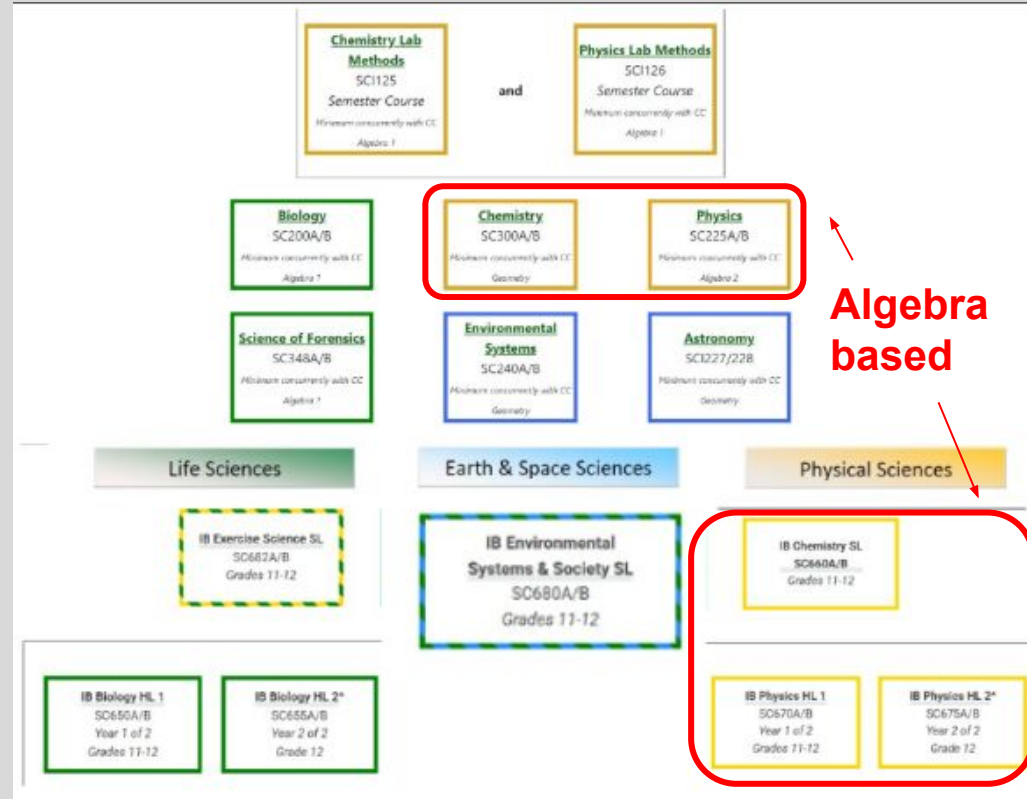
\*Some courses offer a “science” credit but are NOT lab-science (i.e. Computer Science, Sports Medicine). These courses count toward the three credit requirement, but not the 2 lab science requirement.

Everything discussed in this presentation is a **LAB SCIENCE**  
(See photo on right)



# General Science Department Recommendations:

- Take a **variety** of science courses
  - Life *and* physical
  - Algebra *and* non-algebra based
- Take courses that **interest** and **challenge** you
- Freshman year – take **ONLY 1 (one)** lab science course.



# Why take only 1 science class as a 9th grader?

- Focus on learning how to “be” a high school student freshman year (it is different than middle school!).
  - Hone your **organization** and **time-management** skills
  - **Balance** schoolwork and outside activities
  - **Build relationships** with peers and adults
  - **Get enough sleep!**
  - **Stay healthy**
- You have plenty of time to take multiple science classes per year as sophomore/junior/senior. If you plan ahead, you’ll be able to fit in whatever science you want to take. Talk to your counselor to support this planning.

## Things to consider when planning:

**After high school:** Are you planning to attend **post-high school studies?** (2 year college? 4 year college? Technical/trade school? etc.)

### **IF you plan to go to a 4-year university...**

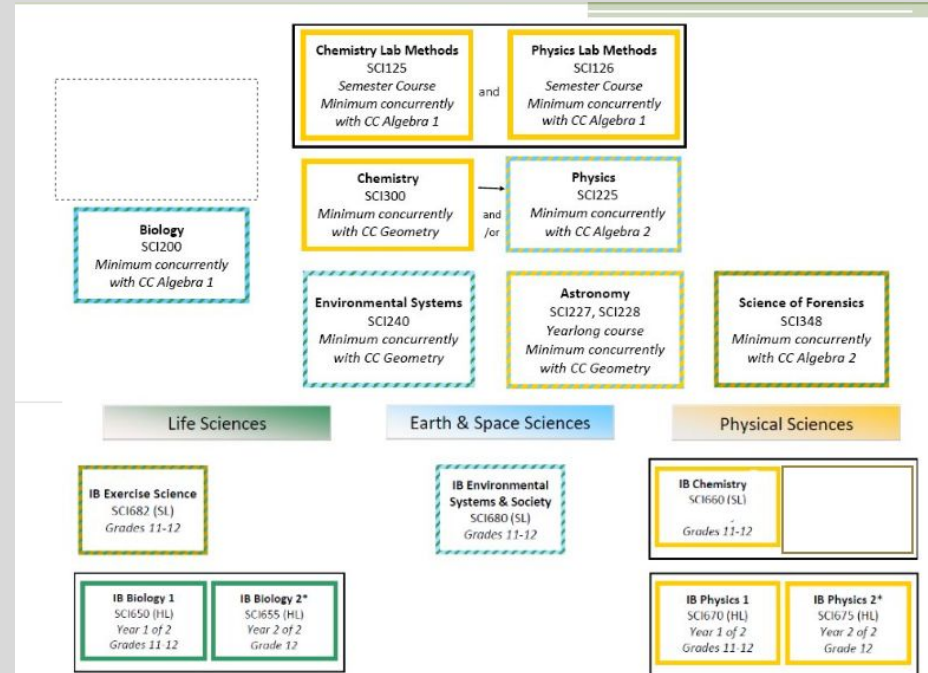
- Take **at least 1** science course **all 4 years**
- You may want to take even more than 4 credits (in a *variety* of subjects) if you plan to **major in STEM**

\*Check university entrance requirements and talk to your counselor regarding any specific entrance expectations

# Things to consider when planning:

## High school pathways: Might you pursue an **IB Diploma** or **IB Career Program**?

*IB classes are taken in 11th and 12th grade only (no exceptions)*



## Things to consider when planning:

**Prior classes:** Did you take **Biology in 8th grade?**

8th grade Biology counts towards high school credits and GPA.

- If you are considering having your student retake Biology in high school, and/or removing the 8th grade course from their transcript, talk to the school counselor for more information.

# Things to consider when planning:

**Prior classes:** What **math class** will you be taking as a 9th grader?

## Math Level is Important!!

- Considering your concurrent math course, and how successful you have been in previous math courses, really impacts the choices for science in which you'll likely be most successful.
- So, ask yourself...
  - How am I doing in my current 8th grade math class?
  - What math will I be signing up for my Freshman year?

# Math Level Recommendations

A list of our class recommendations based on your current math level:

Algebra 1	Geometry	Algebra 2*
<ul style="list-style-type: none"><li>● Biology</li><li>● Lab Methods (Chemistry) &amp; Lab Methods (Physics) <i>*each is 1 semester, 0.5 credits each</i></li><li>● Environmental Systems</li><li>● Science of Forensics</li><li>● Geology/Oceanography</li></ul>	<ul style="list-style-type: none"><li>● Biology</li><li>● Lab Methods (Chemistry) &amp; Lab Methods (Physics)</li><li>● General Chemistry</li><li>● Environmental Systems</li><li>● Astronomy</li><li>● Science of Forensics</li><li>● Geology/Oceanography</li></ul>	<ul style="list-style-type: none"><li>● Biology</li><li>● Lab Methods (Chemistry)</li><li>● Lab Methods (Physics)</li><li>● General Chemistry</li><li>● General Physics</li><li>● Environmental Systems</li><li>● Astronomy</li><li>● Science of Forensics</li><li>● Geology/Oceanography</li></ul>

\*Reminder: **IB classes are taken in 11th and 12th grade only. No exceptions.** (For IB Physics 1, IB Biology 1, IB Chemistry, IB Environmental Systems and Society, IB Exercise Science, **Algebra 2 or higher** is the recommended math level).

Even if you are NOT pursuing the IB diploma, we also encourage you to consider a 2nd year of an IB science, possibly taking more than 1 science in either your junior or senior year.

A few starting courses to consider as a freshman...

# Biology

## Description

- Life science course focusing on characteristics of life, intro to biochemistry, cells and cell function, ecology, genetics, and evolution
- Good preparation for both core and IB level sciences

## Learning Recommendations

- Math Level recommendation: concurrently taking at least Algebra 1

## Lab skills developed

- Measurement and graphical skills
- Scientific Method:
  - Hypothesis building
  - Procedural design and understanding
  - Analysis techniques
  - Conclusion development
- Lab safety
- Lab equipment use and technique (Microscope, some probeware, pipettes)
- Group collaboration
- Outdoor lab skills

# Lab Methods: Physics and Chemistry

0.5 credit per course (1 semester each) / Recommendation: Take in same year

## Description

- Introductory level physics and chemistry course
- Offer content foundational for all upper level Chemistry and Physics courses (general or IB).

### ***Chemistry Content:***

Fundamental concepts such as,  
-relationship between atomic structure and periodic trends  
-chemical bonding  
-chemical and nuclear reactions

### ***Physics Content:***

Fundamental concepts such as,  
-kinematics (motion)  
-applications of Newton's Laws  
-energy transformations

# Lab Methods: Physics and Chemistry

0.5 credit per course (1 semester each) / Recommendation: Take in same year

## Learning Recommendations

- Math Level:  
concurrently taking Algebra 1
- Ideal for a student who took Biology as an 8th grader, but is not ready (mathematically or otherwise) to take General Chemistry

## Lab skills developed

- Fundamental lab techniques and lab safety
- Use of lab and electronic equipment for data collection and manipulation
- Scientific Method:
  - Hypothesis building, Procedural design and understanding, Analysis techniques (including graphical analysis and interpretation fundamentals), Conclusion development
- Measurement and graphical skills
- Increased use of metric units and conversion techniques
- Scientific communication through technical writing
- Group collaboration

# General Chemistry

## Description

- Emphasis on lab skills and scientific inquiry.
- Emphasis on critical thinking and problem solving.
- Chemistry is a quantitative science and students do a significant amount of math.
- *Algebra based* lab science course.

## Learning Recommendations

- Chemistry Lab Methods and General Biology
- A grade of **B or better in Algebra 1**
- Concurrent enrollment in **Geometry**.
- Proficient in the use of computer software for word processing & spreadsheets.
- Proficient in lab technique, problem solving and critical thinking.

# General Physics

## Learning Recommendations

- Knowledge of basic physics principles, such as those covered in Physics Lab Methods
- Have completed Algebra 2 OR are concurrently enrolled in Algebra 2 and have strong math skills
- Are ready to work hard, think hard and interact positively with your fellow classmates.
- Have the ability to solve problems and create projects as part of a team
- This IS an Algebra-based lab science.

# Beyond 9th Grade

- There is no single recommended pathway
- Courses you take should be chosen based on personal interest and future goals
  - ex. If you are planning to go to a 4-year university, consider standard college entrance expectations and your “high school and beyond” plan (i.e. what the possible university you’ll apply to expects you to have taken as prep for your chosen major/field)
- ALL non-IB science options are available to all students—recommendations are based on math level
- **IB Sciences are reserved for juniors and seniors ONLY – no exceptions.**
- **There are No “pre-requisites”** for IB sciences other than our math-level recommendations

# Recommendation Information from ISD Website

Additional information regarding pathways, math recommendations, and sequencing can be found at:

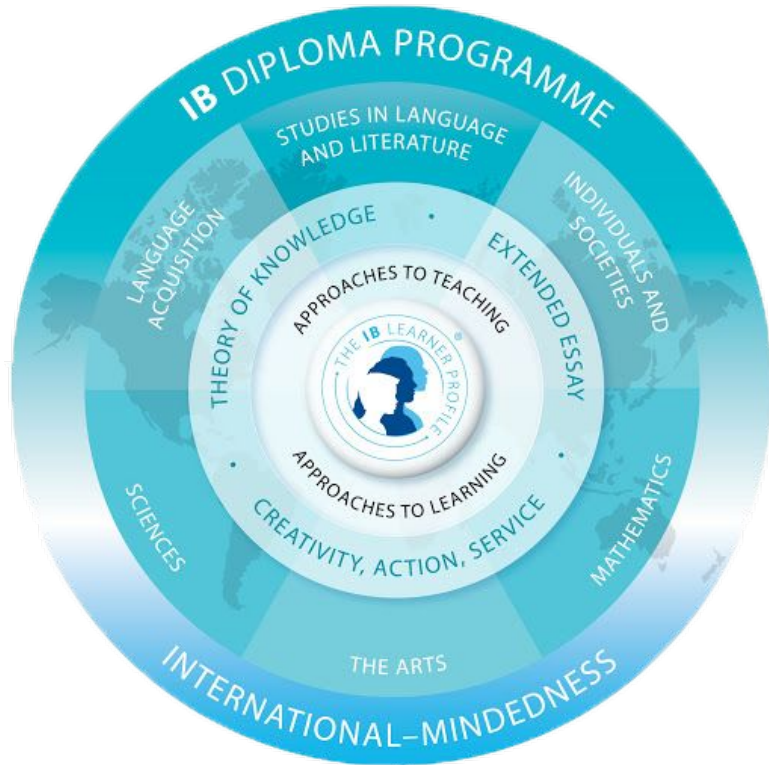
<https://www.isd411.org/academics/high-school-curriculum-pathways/science>



# IB Science Offerings



# Principles of an IB Education



# Who takes an IB Course?



**anyone**



# Higher Level and Standard Level

## Standard Level (SL):

- Fundamental principles of a disciplines
- Broad range of topics
- Less depth than an HL course
- 1-year course

## Higher Level (HL):

- Deep dive into a discipline
- Same topics as SL in greater depth
- Additional topics not taught in the SL course
- 2-year course

# IB Science Options at SHS

**IB classes can be taken in the junior and senior year only, no exceptions.**

	Life Science	Physical Science
SL only	Sports Health and Exercise Science 	
HL only	Biology 	Physics 
Either SL or HL	Environmental Systems and Society 	Chemistry 

# Different Types Of Assessments

There are two main types of assessments in the IB (with nuances for each subject):

1. **Internal Assessments (IA)**: curriculum-embedded tasks completed during the course. These enable students to demonstrate subject-specific skills. Work is graded first by subject teachers, then samples are moderated by external IB examiners to standardise scores for consistency with global benchmarks.
2. **External Assessments**: exams administered in May at the end of the IB course. These are graded externally by IB examiners. Questions may be short answers, structured essays, data-analysis problems, or multiple choice.



# UW Credit Equivalencies

IB BIOLOGY HL	4 = BIOL 161 (5 CR.) 5, 6, 7 = BIOL 161, 162 (10 CR.)
IB CHEM SL	4, 5, 6, 7 = CHEM 110 (3 CR.)
IB CHEM HL	4, 5 = CHEM 142 (5 CR.) 6 = CHEM 142, 152 (10 CR.) 7 = CHEM 142, 152, 162 (15 CR.)
IB EN SYS/SOC SL	4, 5, 6, 7 = ENVIR 102 (5 CR.)
IB PHYS HL	4, 5 = PHYS 101, 102 (10 CR.) 6, 7 = PHYS 114/117, 115/118, 116/119 (15 CR.)
IB EX SCI SL	N/A <i>*Note: WSU gives elective credits for a score of 4 or better</i>