



General Biology, Science, Grades 9-11
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I. Course Summary

In this required one-year course, students will be introduced to the study of living things through four basic biological themes: structure and function, universality versus diversity, equilibrium within systems, and evolution. The scientific method, biological drawing, laboratory skills and safety will be emphasized. Students will explore varying scientific concepts and evaluate evidence to understand the social, sometimes political, environmental, technological and economic factors that influence and are influenced by science. Students will engage in holistic learning, intercultural perspectives, and communication models to prepare them for the future. Students will engage in a variety of different learning activities: readings, lab inquiry, group work, individual work, projects, presentations, papers, and exams. The International Baccalaureate (IB) learner profile will be followed. Throughout the year, we will learn by using real world problems, simulations, document analysis, debates, and journals to help students become inquirers, knowledgeable, thinkers, communicators, principled, open minded, risk takers, balanced, caring, and reflective.

II. Units of Study:

1. Scientific Method, Effective Lab Writing
2. Biochemistry
3. Cells
4. Genetics
5. Evolution
6. Ecology
7. Human Physiology

III. Priority Standards as required by the State of Minnesota

- 9.4.1.1.2 Describe how the functions of individual organ systems are integrated to maintain homeostasis in an organism.
- 9.4.1.2.2 Recognize that the work of the cell is carried out primarily by proteins, most of which are enzymes, and that protein function depends on the amino acid sequence and the shape it takes as a consequence of the interactions between those amino acids.
- 9.4.1.2.4 Explain the function and importance of cell organelles for prokaryotic and/or eukaryotic cells as related to the basic cell processes of respiration, photosynthesis, and protein synthesis and cell reproduction.
- 9.4.2.1.1 Describe factors that affect the carrying capacity of an ecosystem and relate these to population growth.
- 9.4.2.2.2 Explain how matter and energy is transformed and transferred among organisms in an ecosystem, and how energy is dissipated as heat into the environment.
- 9.4.3.1.2 In the context of a monohybrid cross, apply the terms phenotype, genotype, allele, homozygous and heterozygous.
- 9.4.3.1.3 Describe the process of DNA replication and the role of DNA and RNA in assembling protein molecules.
- 9.4.3.2.1 Use concepts from Mendel's Laws of Segregation and Independent Assortment to explain how sorting and recombination (crossing over) of genes during sexual reproduction (meiosis) increases the occurrence of variation in a species.
- 9.4.3.3.2 Use scientific evidence, including the fossil record, homologous structures, and genetic and/or biochemical similarities, to show evolutionary relationships among species.
- 9.4.3.3.4 Explain why genetic variation within a population is essential for evolution to occur.
- 9.4.3.3.5 Explain how competition for finite resources and the changing environment promotes natural selection on offspring survival, depending on whether the offspring have characteristics that are advantageous or disadvantageous in the new environment.
- 9.4.4.1.2 Describe the social, economic and ecological risks and benefits of changing a natural

ecosystem as a result of human activity. For example: Changing the temperature or composition of water, air or soil; altering populations and communities; developing artificial ecosystems; or changing the use of land or water.

9.4.4.2.2 Explain how the body produces antibodies to fight disease and how vaccines assist this process.

The aims of MYP sciences are to encourage and enable students to:

- Understand and appreciate science and its implications
- Consider science as a human endeavor with benefits and limitations
- Cultivate analytical, inquiring and flexible minds that pose questions, solve problems, construct explanations and judge arguments
- Develop skills to design and perform investigations evaluate evidence and reach conclusions
- Build an awareness of the need to effectively collaborate and communicate
- Apply language skills and knowledge in a variety of real-life contexts
- Develop sensitivity towards the living and non-living environments
- Reflect on learning experiences and make informed choices

IV. Text/Resources:

Schoology will be the main resource for students. Any assigned reading material will be provided to students virtually. Some electronic applications may be required and will be available for download on district-issued iPads.

V. Methodology:

In IB MYP, teachers work collaboratively to help students develop skills that can be used across the school's curriculum. Through meaningful assessment, reflection, and critical thinking, teachers hope to reinforce a student's natural curiosity of the world around them. As learning is a life-long process, we work to use the MYP Approaches to Learning to help students achieve greater personal growth as well as academic success.

*Arrive to class, virtually for now, on time and be prepared (science notebook, pencil, iPad)
Check our Schoology page each day for assignments
Be respectful and courteous in all virtual forums
Always work with the highest level of academic honesty and integrity
School and district rules apply – no attire or visible language that may be harmful to others
HAVE FUN!!*

VI. Methods of Assessment

Highland Senior uses a 70/30 system, where Summative Assignments are weighted at 70% of the final grade and Formative Assessments are weighted at 30% of the final grade. Examples of Summative Assessments are labs, tests, presentations and essays. Formative assignments are meant to give the student rapid feedback for improvement. These include quizzes, exit tickets, quick-writes, journal entries, and homework.

Additionally, the IB/MYP rubrics will be followed for assessing summative and formative assignments. There are four areas or criteria that assignments fall under:

Criterion	Area of Focus	Examples
A	Knowing and Understanding	Tests, Quizzes, Homework
B	Inquiring and Designing	Lab Design, Evaluation of design
C	Processing and Evaluating	Data Collection, Reaching conclusions, Evaluating Data, Data Analysis
D	Reflecting on the Impacts of Science	Essays, Presentations

Additional information regarding Highland Park Senior's Grading and Assessment Policies can be found on the HPHS web page. <http://highlandsr.spps.org/home>

VII. Online Etiquette:

All of the Saint Paul Public School and Highland Park High School rules that apply to when you are in class also apply to when you are in a Google Meet. Conduct yourself in the same way you would in our physical classroom. These sessions are simply online versions of conversations and lessons we would have in class. The following is a list of important information to remember when communicating online to get the most out of the sessions and avoid possible disciplinary action:

- Use the chat function when you have a question or comment for me. Remember that everyone can see what you put in the chat.
- Keep your language kind and appropriate. If you don't feel comfortable saying it in our classroom, don't say it in our virtual classroom.
- Choose an appropriate space to participate. Please do not turn on your video if the space you are working in displays inappropriate/offensive images or language.
- Keep your questions and comments on topic.
- Respect each other. Google Meet is a safe space.
- Wait your turn. We can't all talk at one time.
- Be forgiving. This is a new experience for all of us, but we will get better over time. Technology can be tricky!

Remember- You are not anonymous during a Google Meet. Your teacher can mute your microphone, remove you from a live session, and contact your family if you aren't following our expectations.

BIOLOGY SYLLABUS AGREEMENT

In order to assure that teachers, parents, and students work together to help students succeed, I would like you to read the course syllabus. Please review the syllabus and sign below so we can work together to insure success throughout the new term.

Parent/Guardian

*I have read the course syllabus **AND the Flinn Safety Contract** and understand the responsibilities of the student. I agree to help my child succeed in physics class. I understand that my student must follow lab safety guidelines, and will support the teacher in upholding safety policies.*

****Acknowledge agreement on Google Sheet (in Friday folder)*

Student

*I have read the course syllabus **AND the Flinn Safety Contract** and understand the responsibilities of the student. I understand what is required of me by Ms. Bolopue and agree to fulfill those responsibilities outlined in the course syllabus. I will follow all safety guidelines and instructions to work safely in the lab.*

****Acknowledge agreement on Google Sheet (in Friday folder)*