Vertical Planner Subject**: Science (Biology)**

MYP Year 3 2024, Qtrs.: 1-4: 8th Grade

Unit Title	**Key Concept**	**Related Concepts**	**Global Context**	**Statement of Inquiry**	**Objectives**	**ATL**	**Assessment**	**Standards**
Biology Basics	Relation ships	models	Scientific and technical innovation	Students will explore the natural world and its laws; to understand how humans use their understanding of scientific principles and innovations to interact within their environment.	Knowing and Understanding Inquiring and Designing	Thinking skills	The goal is for a member of the world to understand the scientific method as well as terms and measurements to apply their knowledge to a scientific investigation with their pet which they will share with the class.	**HS-LS1-2**: **HS-LS1-6**:
Ecolog y	Relation ships	Balance	Globalizati on and sustainabili ty	To show an understanding of how relationships that humans have with their environments often disrupt the balance in the environment.	Reflecting on the Impacts of Science Processing and Evaluating	Communic ation, research	The goal is for the world citizen to understand the intricate balance between humans and nature which they will investigate through a food web research project within a NM habitat.	**HS-LS2-1: HS-LS2-3: HS-LS2-4: HS-LS2-5: HS-LS2-6: HS-LS2-7: HS-LS2-8:. HS-LS4-6:.**
Cells	Relation ships	models	Personal and Cultural Expression	The student will show their understanding of cell models and apply these to a metaphor to increase their understanding of the relationship of cell systems.	Knowing and Understanding Inquiring and designing	Thinking, communic ation, self-manag ement	The goal is for students to apply their knowledge of cells and compare it to an amusement park which they will share with the rest of the class.	**HS-LS1-2: HS-LS1-3: HS-LS1-4:**

Energy Flow	systems	environment	Identities and relationships	Students will process and evaluate energy flow and reflect its impacts.	Processing and Evaluating Reflecting on the Impacts of Science	Thinking, research	The goal is for the students to explain what would happen to our world if photosynthesis stopped and present to their classmates.	**HS-LS1-5**: **HS-LS1-6**: **HS-LS1-7**: **HS-LS2-3**: **HS-LS2-4**: **HS-LS2-5**:
Genetics	change	patterns	Orientation in space and time Personal and Cultural Expression	Students will understand that genetic changes are often patterns.	Reflecting on the impacts of science Knowing and Understanding.	Self-management	The students, as world citizens, will summarize what occurred in *The Journey of Man* and if scientific knowledge may erase some racist expressions in our world.	**HS-LS1-1:** **HS-LS1-4:** **HS-LS1-6:** **HS-LS3-1:** **HS-LS3-2**:
Hereditary	systems	interaction	Fairness and Development	Students will understand and apply the systems of heredity as well as evaluate the effect of interactions on heredity.	Processing and Evaluating	Research, thinking	Students will act as a parents and create their very own DNA baby.	**HS-LS3-1** **HS-LS3-2:** **HS-LS3-3**:
Evolution	change	transformation	Globalization and sustainability	The goal is for the students to understand the change and transformation in ecology and how it affects globalization and sustainability.	Reflecting on the impacts of science	communication	Students will use their knowledge of evolution to develop an opinion on *The Biology of Skin Color.*	**HS-LS3-2**: **HS-LS3-3**: **HS-LS4-1**: **HS-LS4-2**: **HS-LS4-3**: **HS-LS4-4**: **HS-LS4-5**:

Vertical Planner Subject**: Science (Chemistry)**

MYP Year 4 2024, Qtrs.: 1-4: 9th Grade

Unit Title	**Key Concept**	**Related Concepts**	**Global context**	**Statement of Inquiry**	**Objectives**	**ATL**	**Assessments**	**Standards**
Scientific Method and Skills	Change	Consequences	Scientific and technical innovation, Personal and Cultural Expression	Students will explore the natural world and its laws; to understand how humans use their understanding of scientific principles and innovations to interact within their environment.	Knowing and understanding, reflecting on the impacts of science	Thinking, Social skills	Students will collaborate and correct a scientific misconception.	**HS-LS1-2:** **HS-LS1-6:** **HS-SS-2NM** **HS-ETS1-1**
Matter and Change	Change	Balance	Identities and relationships	Students will explore the natural world and its laws; in order to	Knowing and understanding	Thinking, communication	Students will evaluate plastics in their environment and how they change states.	**HS-PS1-2, 4** **HS-PS1-5.** **HS-ETS1-1.**

				understand how humans use their understanding of scientific principles and innovations to interact within their environment.				
Math in Chemistry	Relationships	Balance	Scientific and technical innovation		Processing and evaluating	thinking	Students will convert measurements in a fudge recipe from the metric system.	**HS-PS4--1**
Atomic Structure /Electrons in the atom/Nuclear Chemistry	Systems	Function	Scientific and technical innovation		Inquiring and designing; reflecting on the impacts of science	Thinking, communication	Students will examine the EMR and present one form of the EMR to their peers.	**HS-PS1-8, 3,6** **HS-PS3-2, 3** **HS-PS4-3, 4**

Periodic Table	Relationships	Models	Orientation in space and time	Students will observe patterns to understand how the world works.	Knowledge and understanding	Communication, self-management skills	Students will organize a periodic table from different creatures as well as adopt an element and make an advertisement.	**HS-PS-1** **HS-PS3-2, 3**
Ionic and Metallic bonding	Relationships	Models	Orientation in space and time	Students will observe models to understand how those properties present in the real world,	Knowledge and understanding	Thinking	Students will experiment with ionic, metallic, and covalent bonding.	**HS-PS1-2, 4**
Covalent bonding	Relationships	Models	Orientation in space and time	Students will observe models to understand how those properties present in the real world,	Knowledge and Understanding	Thinking Research	Students will examine personal care products and the hazardous chemicals that they contain.	**HS-PS1-2, 4** **HS-ETS1-1 ,2** **HS-ETS1-3**

Chemical Names and Formulas	Systems	Function	Fairness and development	Students will observe patterns to understand how the world works	Knowledge and understanding	Social skills	Students will make a web or diagram to guide the naming of chemical formulas.	**HS-PS1-2, 4**
Stoichiometry/The Mole	Change	Balance	Identities and relationships	Students will understand how balance presents itself in chemistry.	Processing and evaluating, inquiring and designing	Thinking, Social skills	Students will examine the antioxidants in their diets and determine what they can do to reduce these.	**HS-PS1-2, 4**
Chemical Reactions/Solutions	Change	Models	Globalization and sustainability	Same	Processing and evaluating	Social skills, Research	Students will examine the free radicals and antioxidants in their diets and determine what they can do to reduce these.	**HS-PS1-7.** **HS-PS1-2, 4** **HS-PS2-2** **HS-ETS1-1, 2, 3,4**
Gas Laws	Relationships	Movement	Identities and relationships	Same	Processing and evaluating	Thinking	Students will examine gases in the laboratory.	**HS-PS1-3.**

Acids and Bases	Systems	Movement	Globalization and sustainability	Same	Processing and evaluating Inquiring and designing	Self-management	Students will examine acids and bases in the laboratory	**HS-PS1-2** **HS-PS2-5.**

Vertical Planner Subject**: Science (Physics)**

MYP Year 4 2024, Qtrs.: 1-4: 9th Grade

Unit Title	**Key Concept**	**Related Concepts**	**Global Context**	**Statement of Inquiry**	**Objectives**	**ATL**	**Assessment**	**Standards**
Scientific Method and Skills	Change	Consequences	Scientific and technical innovation, Personal and Cultural Expression	Students will explore the natural world and its laws; to understand how humans use their understanding of scientific principles and innovations to interact within their	Knowing and understanding, reflecting on the impacts of science	Thinking, Social	Students will collaborate and correct a scientific misconception.	**HS-LS1-2**: **HS-LS1-6**: **HS-SS-2NM** **HS-ETS1-1**

				environment.				
Motion	Relationships	Movement	Orientation in space and time, relationships	Students will explore the relationships of motion and what relationships develop.	Processing and evaluating	Thinking, self-management skills	Students will design a board game that incorporates their knowledge of motion.	**HS-PS2-1, 2,3,4,5, HS-ETS1-2**
Forces	Systems	Movement	Scientific and technical innovation, relationships	Students will explore systems in movement and evaluate or refine a device that minimizes force on an object.	Processing and evaluating Inquiring and designing	Thinking, research	Students will apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes force on an object.	**HS-PS2-2,3 ,4,5,6 5SS-1NM HS-ETS1-3**
Space/Earth Science and Earth's Systems	Relationships	Environment	Orientation in space and time, Scientific and technical innovation	The goal is for students to comprehend the relationships in the earth as well as space to motion.	Inquiring and designing	Communication, research	Students will design a rocket that can reach another planet and adapt to that planet's conditions.	**HS-ESS1-1, 2,3,4, HS-ESS1-5, 6, HS-ESS2-1, 2,3 1SS-1NM**

Energy, work, and Power	Systems	Energy	Fairness and development Globalization and Sustainability	Students will explore systems in energy and evaluate or refine a device that utilizes the transfer of thermal energy that will increase sustainability.	Knowing and understanding, inquiring and designing	Research, Social	Students will design, build, or refine a device that shows the transfer of thermal energy that will increase sustainability.	**HS-PS3-1,2,3,4,5 HS-ETS1-1, 2 HS-Ls2-7 NM HS-ETS1-4**
Waves and Electromagnetic Radiation	Change	Energy	Orientation in Space and Time	The goal is for students to use their knowledge of waves and EMR to evaluate and explain a technological device that uses these principles.	Reflecting on the impacts of science	communication	Students will communicate info on how some technological devices use the principles of wave behavior.	**HS-PS4-1,2,3,4,5 5-SS-1NM HS-SS-2NM**
Electricity	Change	energy	Globalization and sustainability	The goal is for students to use their knowledge of electricity	Inquiring and designing	Thinking, self-management	Students will plan and conduct an investigation to provide evidence that	**HS-PS4-1,2,3,4,5**

				to conduct an evaluation of currents and magnetic fields.			an electric current can produce and magnetic field and that a changing magnetic field can produce an electric current.	