MYP 1	***Unit # 1***
	Title/Theme: Cell Structure and Function
	Standards
	LS1.A
	# of weeks: 7
	Key Concept(s): Change
	Related Concept(s): Form, Function
	Global Context : Orientation in space and time
	Statement of Inquiry: The change in the shape of the cells determines their function and thus contributes to the classification and identification of living organisms and its orientation in space and time
	MYP Objectives *:* A. Knowing and understanding /B. Inquiring and designing / C. Processing and evaluating / D. Reflecting on the impacts of science
	ATL Skills: Self-management- Organization skills: Keep and use a weekly planner for assignments Select and use technology effectively and productively Research- Information literacy skills: Collect, record and verify data Access information to be informed and inform others
	Assessment Task with criteria **:** Summative assessmen: t A (I, ii) and D. iii B (I, ii, iii) and C (i, ii) Performance task (Transformation of water by osmosis)
	Unit # 1
	Title/Theme: States of Matter
	Standards : MS-PS1-1 MS-PS1-2 MS-PS1-4 MS-ESS2-4

MYP 2	***Content:*** Solids - liquids-gases-phase changes - pure substances - mixtures
	# of weeks: *9*
	Key Concept(s): Change
	Related Concept(s): Form - Energy.
	Global Context: Scientific and technical innovation
	Statement of Inquiry: Studying the changes of state of matter and the forms of energy involved in those changes has a great impact on the industrial development.
	MYP Objectives: A Knowing and understanding (i,ii,iii) B Inquiring and designing(i,ii,iii,iv) C Processing and evaluating (i,ii,iii,iv,v) D Reflecting on the impact of science (i,ii,iii,iv)
	ATL Skills **:** Self Management (plan short and long term assignments; meet the deadlines); Research (collect,record and verify data); Thinking (use models and stimulation to explore complex systems)
	Assessment Task with criteria: *Assessment 1 (paper and pencil test): A Knowing and understanding (i,ii,iii) *Assessment 2 (paper and pencil test): A Knowing and understanding (i,ii,iii) * Practical work & lab report: B Inquiring and designing(i,ii,iii,iv) C Processing and evaluating (i,ii,iii,iv,v) D Reflecting on the impact of science (i,ii,iii,iv)

	Unit # 1

MYP 3	
	:Title/Theme
	Cells and Tissues
	Standards
	MS-LS1-1
	MS-LS1-2
	MS-LS1-3
	Content
	Celluar theory
	Characteristics of living organisms
	Classification of cells
	Cell structure
	Tissues
	# OF WEEKS:7
	(s)Key Concept:
	Systems
	RELATED CONCEPT
	Function
	GLOBAL CONTEXT
	;Scientific and technical innovation (Systems, models,)methods products, processes and solutions
	STATEMENT OF INQUIRY
	Cells in the body form a coherent system of relationships between structure and function, and scientific and technical innovation has contributed to further discoveries of these relationships
	:MYP objectives
	A: Knowing and understanding (I, ii, iii) B: Inquiring and designing (I, ii, iii) C: Processing and evaluating (I, ii, iii, iv, v) D: Reflecting on the impacts of science ((I, ii, iii, iv)
	ATL skills

	Research - Information literacy skills: Understand and use technology systems
	Self-management - Reflection skills: Keep a journal to record reflections
	Self-management - Organization skills: Create plans to prepare for summative assessments (examinations and performances)
	Assessment Task with criteria
	Summative test (the test questions include all levels of Knowing and Understanding): A with all strands
	Performance task: Creating a model from real life and relate to the Cell system. D with all strands
	Science fair :B,C-with all stands
	Unit: 1
	Title/Theme:
	Atomic and nuclear structure
	Standards:
	MS-PS1-1
	HS-PS1-1
	HS-PS1-8
	Content:
	Atomic models
	Components of atom
	Isotops and nuclear reactions
	Electron configuration
	Periodic table
	# OF WEEKS: 7
	KEY CONCEPT:
	Relationships
	RELATED CONCEPT:
	Models
	Patterns
	GLOBAL CONTEXT:

MYP 4 Muqararat	Scientific and technical innovation (systems, models, methods, products and solutions)
	STATEMENT OF INQUIRY:
	The relationship between models and patterns shows the scientific and technical innovation
	MYP objectives:
	A : Knowing and understanding
	(I, ii, iii)
	B: Inquiring and designing (I, ii, iii)
	C: Processing and evaluating (I, ii, iii, iv)
	D: Reflecting on the impacts of science (I, ii, iii, iv)
	ATL skills
	Research skills
	Information litercy skills
	Collect, record and verify data
	Media literacy skills
	Communicate information and ideas effectively to multiple audiences using a variety of media and formats
	Assessment Task with criteria
	Summative assessment: A
	Science fair: B & C
	Performance task (nuclear reactions) A & D
	Unit 1
	TITLE : Atomic and Nuclear Structure
	STANDARDS : MS-PS1-1 / HS-PS1-8 / Hs- PS1- 1
	CONTENT : ch.9understanding the atoms p.310 -333 Sec. 1. discovering parts of an atom Sec.2 how atoms differ Ch.10 the periodic table 342-369 Sec. 1 using the periodic table sec. 2 metals sec.3 nonmetals and metalloids .

MYP 4 Diploma	***# OF WEEKS: 7***
	KEY CONCEPT : Relationships
	RELATED CONCEPT : Models and patterns
	GLOBAL CONTEXT : Scientific and technical innovation (systems, models, methods, products and solutions)
	STATEMENT OF INQUIRY : The relationships between models and patterns shows the scientific and technical innovation.
	MYP OBJECTIVES : A.i,ii ;B.i,iii,iv ; C.i,ii,iii ;D.i,ii,iv
	ATL SKILLS **:** Thinking, critical thinking skills (use models& simulations to explore complex systems and issues. Research ,information literacy skill (identify primary and secondary sources)
	Assessment Task with criteria: Task 1: Students willcollect data and write a reseach regarding nuclear reactions and radioactivity and their applications. (In this activity, students will be assessed using criteria D.i,ii,iv) Task 2: Summative Assessment/Communicate your Knowledge about the Atom. (In this activity, students will be assessed using criteria A.i,ii) Task 3: Science: students will choose an topic to investigate and persent their skills in the science fair. (In this activity, students will be assessed using criteria B.i,ii,iii,iv & C.i,ii,iii,iv.v)
	Unit 1
	Title/Theme : Introduction to Physics & Vectors
	Standards : AP physics big idea 4
	content : scalar and vector quantity , vectors in 2-D , vector components , adding vectors , coordinates system
	# of weeks: 6
	Key Concept(s) : Relationship
	Related Concept(s): pattern , model
	Global Context :Orientation in Space and Time

MYP 5 Physics	***Statement of Inquiry*** :Establishing patterns in the space can help understanding relationships
	MYP Objectives: A Knowing and understanding (i,ii,iii)
	ATL Skills: Social (Help others to succeed); Self Management (Set goals that are challenging and realistic)
	Assessment Task with criteria: *Assessment 1: A Knowing and understanding (i,ii,iii)
MYP 5 Chemistry	***Unit#1***
	Title/Theme :Atomic structure & nuclear Structure
	Standards SP 1,2 &3 NGSS HS-PS1-8 HS-PS1-3

	Ch.5 Electrons in atoms: Sec.1 Light and Quantized energy. P.137+ 141+ 142+143 Sec. 2 Quantum Theory and the atom P.146-155 Sec. 2 Quantum Theory and the atom P.146-155 Sec. 3 Electron configuration. P.156-162
	# Of Weeks 4 W / 8 Hours
	Key Concepts Systems
	Related Concepts Models, Energy
	Global Context Scientific and technical innovation (systems, models, methods, products and solutions)
	Statement of Inquiry The energy embedded in systems create innovated models and products.
	MYP Objectives A. : i. explains scientific knowledge. ii. apply scientific knowledge and understanding to solve problems set in familiar and unfamiliar situations iii. analyze and evaluate information to make scientifically supported judgments. D. : i explain the ways in which a science is applied and used to address specific problems or issues. ii. discuss and evaluate the various implications of using science and its applications to solve specific problem or issue

	iii. Apply scientific language effectively. iv. Document the work of others and sources of information used.
	ATL Skills Thinking (creative thinking skills) Practice flexible thinking – arguing both sides of an argument
	Assessment Task with criteria: Written assessment against criterion A with all strand to cover the content of the unit up till the end of the fifth week. Research showing the latest structure of the atom, a content of multi product task against criterion D with its strands
	UNIT 1
	Title/Theme: Cellular Energetics
	STANDARDS: HS-LS1-5:
	CONTENT: Photosynthesis & Cellular Respiration & Fermentation
	# of weeks: 5
	Key Concept(s): System
	Related Concept(s): Transformation, Energy
	Global Context **:** Scientific an d Technical Innovation

MYP 5 Biology	***Statement of Inquiry*** : The system of life are supported by biochemical reaction and the transformation of energy that occur within cells. Innovation in science could lead to these reaction being utilized to meet growing energy and food needs.
	MYP Objectives **:** A.i,ii; Bi,iii,iv ; Ci,ii,iii
	ATL Skills *:* self-management; Thinking Skills Self Management Bring necessary equipment and supplies to class Practice analyzing and attributing causes for failure Practice managing self-talk Practice positive thinking Consider content (What did I learn about today? What don't I yet understand? What questions do I have now?) Thinking Interpret data Use brainstorming and mind mapping to generate new ideas and inquiries Apply skills and knowledge in unfamiliar situations
	Assessment Task with criteria:
	SUMMATIVE ASSESSMENTS: Task 1: Summative Assessment/Writing a letter to a mock company executives explaining the impacts of pesticides on food production and consequent effect on the environment. (In this activity, the students have practiced skills that are assessed using criteria A.i,ii,iii)

	Task 2: Proving that oxygen is produced by photosynthesis. (In this activity, the students have practiced skills that are assessed using criteria B.i,iii,iv). Task 3: Burning Glucose/Testing a leaf for starch/An experiment to investigate the effect of light intensity on rate of photosynthesis. (In this activity, the students have practiced skills that are assessed using criteria C.i,ii,iii)

MYP Science Subje

Acad

Unit #2
Title/Theme: Growth and reproduction
Standards
LS1.A
# of weeks : 8
Key Concept(s): Relationships
Related Concept(s): Balance, Form
Global Context: Identities and relationships
Statement of Inquiry **:** Our environment, behavior, and reproductive systems cause variation in characteristics and this affects the survival and growth of living organisms
MYP Objectives: A. Knowing and understanding /B. Inquiring and designing / C. Processing and evaluating / D. Reflecting on the impacts of science
ATL Skills: Self-management- Reflection skills: Focus on the process of creating by imitating the work of others Social- Collaboration skills: Practice empathy Communication skills: Use intercultural understanding to interpret communication
Assessment Task with criteria: Performance task (Human Races) A (I, ii, iii) and D(I, ii, iii, vi) Lab report (Dominant traits and recessive traits): B (I, ii) and C (i, ii, iii)
Unit # 2
Title/Theme *:* Energy
Standards: MS-PS3-1 MS-PS3-2 MS-PS3-3 MS-PS3-4 MS-PS3-5 MS-ETS1-3

Content : Energy - potential and kinetic energy - transoformation of energy - energy efficiency.

# of weeks: *6*

Key Concept(s): Change

Related Concept(s): Energy - consequence

Global Context: Globalization and sustainabiltiy

Statement of Inquiry: Man's ever increasing need for energy change has a range of consequences.

MYP Objectives: A Knowing and understanding (i,ii,iii)
B Inquiring and designing(i,ii,iii,iv)
C Processing and evaluating (i,ii,iii,iv,v)
D Reflecting on the impact of science (i,ii,iii,iv)

ATL Skills: Social (listen actively to other perspectives and ideas); Research (present information in a variety of formats and platforms); Thinking (interpret data)

Assessment Task with criteria:
*Assessment 3 (paper and pencil test):
A Knowing and understanding (i,ii,iii)
*Practical work & lab report :
B Inquiring and designing(i,ii,iii,iv)
C Processing and evaluating (i,ii,iii,iv,v)
D Reflecting on the impact of science (i,ii,iii,iv)

Unit # 2

:Title/Theme
Nutrition and Exercise
Standards
MS-LS1-1
MS-LS1-3
Content
Digestive system and food
Circulatory system
Respiratory system
 # OF WEEKS:9
(s)Key Concept:
Change
RELATED CONCEPT
PE: Energy
Science: Movement, Patterns
GLOBAL CONTEXT
Identities and relationships (Physical, psychological and social development; transitions; health and well-being; lifestyle (choices
STATEMENT OF INQUIRY
Understanding the relationship between healthy diet and energy balance will help us to change our lifestyle choices
:MYP objectives
A: Knowing and understanding (I, ii, iii) B: Inquiring and designing (I, ii, iii) C: Processing and evaluating (I, ii, iii, iv, v) D: Reflecting on the impacts of science ((I, ii, iii, iv)
ATL skills

Social - Collaboration skills: Build consensus
Thinking - Critical-thinking skills: Gather and organize relevant information to formulate an argument
Assessment Task with criteria
Summative test: A with all strands
B & C: Lab Report: Investigation of Organic material ,
Performance task: Design a nutrition, an exercise plan and assess its impact on a healthy lifestyle
Unit: 2
Title/Theme:
Chemical equation and formula
STANDARDS
MS-PS1-5
HS-PS1-2
HS-PS1-7
CONTENT:
Atoms, molecules and compounds
Inonic bond
Covalent bond
Chemical equation
Types of chemical reactions
 # OF WEEKS: 8
KEY CONCEPT:
Change
RELATED CONCEPT:
transformation
Interaction
GLOBAL CONTEXT:

Orientation in space and time (Peoples, boundaries, exchange and interaction)
STATEMENT OF INQUIRY:
Change and interaction leads to energy change
MYP objectives:
A : Knowing and understanding
(I, ii, iii)
B: Inquiring and designing (I, ii, iii)
C: Processing and evaluating (I, ii, iii, iv)
D: Reflecting on the impacts of science (I, ii, iii, iv)
ATL skills
Communication
Communication skills
Share ideas with multiple audiences using a variety of digital environments and media
Take effective notes in class
Assessment Task with criteria
Performance task (chemical reactions) D
Lab report: B & C
Unit 2
TITLE: chemical equation and formula
STANDARDS : MS-PS1-5 / Hs- PS1- 7 / HS-PS1-2
CONTENT : Content: Ch11. p. 378-403 sec.1 electrons and energy levels Sec.2 compounds and chemical formula and covalent bond Sec. 3 ionic and covalent bonds ch12. Sec1. understanding the chemical reaction Sec. 2 types of chemical reactions Sec. 3 energy changes and chemical reactions

 # OF WEEKS: 8
KEY CONCEPT: Change
RELATED CONCEPT : Interaction and evidence
***GLOBAL CONTEXT* :**orientation in space and time(people, boundaries, exchange and interaction)
***STATEMENT OF INQUIRY* :** change is an evidence for interaction and exchange between systems.
***MYP OBJECTIVES* :**A.i,ii,iii ;B.i,ii,iii,iv ; C.i,ii,iii,iv,v ;D.i,ii,iii,iv
ATL SKILLS : ATL:Communication skills (share ideas with multiple audiences using a variety of digital environments and media. Thinking, critical thinking (draw a reasonable conclusion and generalization)
Assessment Task with criteria: Task 1: Students will conduct a lab experiment to demonstrate chemical reaction and chemical bonding (In this activity, the sutdents will be assessed using criteria B.i,ii,iii,iv & C.i,ii,iii,iv,v) Task 2: Summative Assessment. (In this activity, students will assessed using criteria A.i,ii,iii) Task 3: research on application of chemical reactions and its impacts. (In this activity, students will be assessed using criteria D.i,ii,iii,iv)
Unit 2
Title/Theme : Kinematics
Standards : AP physics big idea 4
content : position time graph , velocity , equation of motion , free fall
# of weeks: 10
Key Concept(s): Relationship
Related Concept(s): movement, pattern
Global Context: identities and relationships

Statement of Inquiry: Objects in Motion with different patterns are described by various relationships

MYP Objectives: A Knowing and understanding (i,ii,iii)
B Inquiring and designing
(i,ii,iii)
C Processing and evaluating (i,ii,iii,iv,v)
D Reflecting on the impact of science
(i,ii,iii,iv)

ATL Skills : Research (Make connections between various sources of information); Thinking (Gather and organize relevant information and formulate an argument)

Assessment Task with criteria:
*assessment 1: A Knowing and understanding (i,ii,iii)

* assessment 2: A Knowing and understanding (i,ii,iii)

* lab report : GLX moving carts Graphical analysis; B Inquiring and designing(i,ii,iii,iv)
C Processing and evaluating (i,ii,iii,iv,v)
D Reflecting on the impact of science (i,ii,iii,iv)

Unit# 2

Title/Theme :The Periodic Table

Standards
SP 1-6

NGSS HS-PS1-4
HS-PS1-1

Ch.6 The periodic table & The periodic trend
Sec.1 Development of the modern periodic table P.174-181
Sec.2 Classifications of the elements. P.182-186
Sec.3 Periodic Trends P. 187-194

 # Of Weeks

4 W / 8 Hours

Key Concepts

System

Related Concepts

Patterns and Function

Global Context

Fairness and development
(inequality, difference and inclusion)

Statement of Inquiry

The inclusion of different patterns and their functions leads to great developments.

MYP Objectives

B. Inquiring and Designing
Explain a problem or question to be tested by a scientific investigation
Formulate a testable hypothesis and explain it using scientific reasoning

Explain how to manipulate the variables, and explain how data will be collected
Design scientific investigations

C. Processing and Evaluating

Present collected and transformed data

Interpret data and explain results using scientific reasoning

Evaluate the validity of a hypothesis based on the outcome of the scientific investigation
Evaluate the validity of the method

Explain improvements or extensions to the method

ATL Skills
Research
Information literacy Use critical literacy skills to analyze and interpret media communications

Assessment Task with criteria:
Practical experiment in which the students will design and implement their own experiment against criteria B&C

UNIT 2

Title/Theme : DNA / Genetic material

HS-LS1-1; HS-LS3-1:

Intro to Genetics; DNA; RNA & Protein Synthesis

# of weeks: 5

Key Concept(s): Relationship

Related Concept(s) : Models and patterns

Global Context: Indentities and relatioships

Statement of Inquiry: Your identity and relationships with other people are determined by genetic factors: scientific evidence has led to models that help to understand observed patterns of inheritance.

MYP Objectives : Ai,ii ; Ci,ii,iii ; Di,ii,iv

ATL Skills: Self-Management: Organization and Critical Thinking skills
Self-Management: Organization skills
plan short and long term assignments; meet deadlines

Keep and use a weekly planner for assignments

Critical Thinking Skills

interpret data

identify obstacles and challenges

Assessment Task with criteria:

SUMMATIVE ASSESSMENT: Task 1: Summative Assessment/Students will be asked to answer the questions formulated in the case study entitled "The Galapagos." These questions determine the students ability to understand the changes that has taken place over a certain period of time. Another activity is Making your own model of DNA. (In this activity, the students have practiced skills that are assessed using criteria A.i,ii

Task 2: DNA extraction from Kiwi fruit. (In this activity, the students have practiced skills that are assessed using criteria C.i,ii,iii).

Task 3: internet research on Gene cloning/Genetic engineering. (In this activity, the students have practiced skills that are assessed using criteria D.i,ii,iii)

ct Overview/Vetical Map MYP 1-5

emic Year 2019-2020

Unit # 3	***Unit #4***
Title/Theme: Floating, Sinking and	Title/Theme: Chemical Reactions
Standards	***Standards***
MS-ETS1-1. / MS-PS I2-2./ MS-ETS 1-2	MS-PS1-1. MS-PS1-2.
# of weeks: 5	***# of weeks*** : 5
Key Concept(s) : Relationships	***Key Concept(s):*** Systems
Related Concept(s) : Models, Form, Function	***Related Concept(s):*** Evidence,
Global Context : Scientific and technical innovation	***Global Context*** : Fairness and development
Statement of Inquiry **:** The design and use of sailing boats depends on the knowledge of shape, function and use of models:	***Statement of Inquiry:*** There is evidence of a change in pH as a result of human activities have serious consequences
MYP Objectives **:** A. Knowing and understanding /B. Inquiring and designing / C. Processing and evaluating / D. Reflecting on the impacts of science	***MYP Objectives:*** A. Knowing and understanding /B. Inquiring and designing / C. Processing and evaluating / D. Reflecting on the impacts of science
ATL Skills: Self-management- Organization skills: Bring necessary equipment and supplies to class Thinking- Critical-thinking skills: Identify obstacles and challenges Identify trends and forecast possibilities	***ATL Skills:*** Communication skills: Practice empathy Use and interpret a range of discipline-specific terms and symbols Take effective notes in class Make effective summary notes for studying
Assessment Task with criteria: Summative Assessment: Criterion A(I, ii, iv) and D (I, iii, iv) Performance task (Clay boat) B (I, ii, iii) and C (I, ii, iii) Science fair project (B (I, ii, iii) and C(I, ii, iii)	***Assessment Task with criteria:*** Summative Assessment: Criterion A(I, ii, iii) Lab report (Acids and Bases) B (I, iii) and C(I, ii, iii) Performance task D (I, ii, iii, vi)
Unit # 3	***Unit # 4: IDU***
Title/Theme *:* Ecology	***Title/Theme*** *:* Climate Change
Standards: MS-LS2-1 MS-LS2-2 MS-LS2-3 MS-LS2-4 MS-LS2-5 MS-ESS3-3 MS-ESS3-5	***Standards:*** HS-ESS2-4 HS-ESS2-5 HS-ESS2-6 MS-ESS3-1 MS-ESS3-2

Content: Ecosystem - biotic and abiotic components - interaction between populations - human impact on ecosystem	***Content:*** Composition of atmosphere - uneven heating and weather patterns - weather parameters - technology to track weather - climate change
# of weeks *: 6*	***# of weeks*** *: 10*
Key Concept(s): Relationships	***Key Concept(s):*** : Change
***Related Concept(s*):** balance-consequences	***Related Concept(s)* :** patterns - consequences.
Global Context: Identities and relationships	**Global Context**: Globalization and Sustainability
Statement of Inquiry: Ecological relationships are highly balanced; even minor changes within them can have great consequences.	***Statement of Inquiry* :** The changes in the climate conditions will lead to diverse environmental conditions which need global and sustainable measures to solve.
MYP Objectives: A Knowing and understanding (i,ii,iii) B Inquiring and designing(i,ii,iii,iv) C Processing and evaluating (i,ii,iii,iv,v) D Reflecting on the impact of science (i,ii,iii,iv)	***MYP Objectives:*** Interdisciplinary Criteria - A, B, C & D; Subject specific criteria: A Knowing and understanding (i,ii,iii) B Inquiring and designing(i,ii,iii,iv) C Processing and evaluating (i,ii,iii,iv,v) D Reflecting on the impact of science (i,ii,iii,iv)
ATL Skills: Research (collect and analyze data to identify solutions and meet informed decisions); Thinking (draw reasonable conclusions and generalizations)	***ATL Skills* :** Research (collect and analyze data to identify solutions and make informed decision); Communication negotiate ideas and knowledge with peers andteachers; use a variety of speaking techniques to communicate with a variety of audience; organize and depect information logically); thinking (critical thinking - evaluate evidence and arguments; gather and organize relevant information to formulate an argument)
Assessment Task with criteria: <u>*Assessment 1 (paper and pencil test):</u> A Knowing and understanding (i,ii,iii) <u>* Performance Task (independent research project):</u> B Inquiring and designing(i,ii,iii,iv) C Processing and evaluating (i,ii,iii,iv,v) D Reflecting on the impact of science (i,ii,iii,iv)	***Assessment Task with criteria:*** IDU criteria A, B, C & D; Subject - Specific criteria**:** <u>*Assessment 2 (paper and pencil test):</u> A Knowing and understanding (i,ii,iii) <u>*Science Fair:</u> B Inquiring and designing(i,ii,iii,iv) C Processing and evaluating (i,ii,iii,iv,v) D Reflecting on the impact of science (i,ii,iii,iv)

Unit # 3	***Unit # 4***

Title/Theme	***Title/Theme***
Earth, Space and Stars	Earth Systems
Standards	***Standards***
MS-ESS1-1	MS-ESS2-1
MS-ESS1-2	MS-ESS2-2
MS-ESS1-3	MS-ESS2-3
	HS-ESS2-1
	HS-ESS2-3
Content	***Content***
The origin of the solar system	Minerals and rock types
Components of the solar system	Internal structure of the earth
Movement of the Earth and the Moon	Tectonic plate movements
Galaxies and stars	Weathering and erosion
# OF WEEKS: 5	***# OF WEEKS 6:***
(s)Key Concept:	***(s)Key Concept:***
Systems	Change
RELATED CONCEPT	***RELATED CONCEPT***
Patterns	Energy
Movement	Movement
GLOBAL CONTEXT	***GLOBAL CONTEXT***
,Globalization and sustainability (Commonality (diversity and interconnection	,Orientation in space and time Epochs ”eras, turning points and “big history
STATEMENT OF INQUIRY	***STATEMENT OF INQUIRY***
The cosmic system consists of multiple components resulting from its continuous movements of different types of natural phenomena	Changing surface of the earth and the sea is produced by internal and external forces of varying time and place
:MYP objectives	***:MYP objectives***
A: Knowing and understanding (I, ii, iii) D: Reflecting on the impacts of science ((I, ii, iii, iv)	A: Knowing and understanding (I, ii, iii) B: Inquiring and designing (I, ii, iii) C: Processing and evaluating (I, ii, iii, iv, v)
ATL skills	***ATL skills***

Thinking Skills: Critical-thinking skills, Interpret data	Thinking Skills: Critical-thinking skills Gather and organize relevant information to formulate an argument
Social: Collaboration skills, Exercise leadership and take on a variety of roles within groups	Research - Information literacy skills Access information to be informed and inform others
Assessment Task with criteria	***Assessment Task with criteria***
Summative test: A with all strands	Summative test: A with all strands
Research paper: D with all strands	Lab report (Types of Rocks): B, C with all strands
Unit: 3	***Unit: 4***
Title/Theme:	***Title/Theme:***
Motion in one dimension	Cells and Homeotasis
STANDARDS	***STANDARDS***
MS-PS2-1	MS-LS1-2
MS-PS2-1	HS-LS1-1
	HS-LS1-2
CONTENT:	***CONTENT:***
Distance and displacement	Cellular theory
	Metabolic processes
Newton 's Laws of Motion	Cellular transportation
Types of forces	
# OF WEEKS: 5	***# OF WEEKS: 4***
KEY CONCEPT:	***KEY CONCEPT:***
Relationships	Systems
RELATED CONCEPT:	***RELATED CONCEPT:***
Movement	Function
	Balance
GLOBAL CONTEXT:	***GLOBAL CONTEXT:***

Scientific and technical innovation (Digital life, virtual environments)	Personal and cultural expression (Artistry, craft, creation, beauty
STATEMENT OF INQUIRY:	***STATEMENT OF INQUIRY:***
The principle of many innovations depends on the relationship between force and motion	The function of the system creates an environment that enables the display of ingenuity, innovation and beauty
MYP objectives:	***MYP objectives:***
A : Knowing and understanding (I, ii, iii)	A : Knowing and understanding (I, ii, iii)
D: Reflecting on the impacts of science (I, ii, iii, iv)	
	B: Inquiring and designing (I, ii, iii)
	C: Processing and evaluating (I, ii, iii, iv)
ATL skills	***ATL skills***
Thinking skills	Research skills
(Creative thinking)	Information literacy skills
Apply existing knowledge to generate new ideas, products or processes	Process data and report results
(Critical thinking skills)	Media literacy skills
Interpret data	Make informed choices about personal viewing experiences
Assessment Task with criteria	***Assessment Task with criteria***
Summative assessment: A	Summative assessment: A
Performance task (Application of Newton's laws in life) D	Lab report: B & C (transportation across the cell membrane)
Unit 3	***Unit 4***
TITLE : Cells and Homeotasis	***TITLE:*** Introduction to Inheritance
STANDARDS :MS-LS1-2 / HS-LS1-1 / HS-LS-2 / HS-LS-3	***STANDARDS:*** MS-LS3-1 / MS-LS3-2
CONTENT **:** Content: cells as systems, cell membrane functions in relation to osmosis(the focus is on cell membrane), transport mechanisim (hypotonic, isotonic and hypertonic. how does plant and animal cell respond to different tonicity? positive and negative feedback. (eg. of a mitochondrial membrane disease, outline DNA ,replication DNA makes RNA makes protein.	***CONTENT:*** Content: mutations affect chromosomes and so traits. mitosis results in identical offsprings, meiosis results in unidentical offsprings, mutations also result in variations, Punnet squares for optional sex determination, (monohyprid and dihyhyprid. Beneficial and harmful mutations, vocabulary Chromosom, allel, variation, mutation, inheritance.

# OF WEEKS: 5	***# OF WEEKS: 5***
KEY CONCEPT: system	***KEY CONCEPT:*** relationships
RELATED CONCEP T: function and environment	***RELATED CONCEPT:*** form, evidences
GLOBAL CONTEXT: personal and cultural expressions (Artistry, craft, creation, beauty)	***GLOBAL CONTEX T:*** identities and relationships (Identity formation; self-esteem; status; roles and role models)
STATEMENT OF INQUIRY: The function of the system is to create an enviroment that promotes Artistry, creation, and beauty	***STATEMENT OF INQUIRY :*** Relationships between different forms provide evidence for identity and self-esteem
MYP OBJECTIVES: A.i,ii ;B.i,iii,iv ; C.i,ii,iii ;D.i,ii,iv	***MYP OBJECTIVES*** : A.i,ii ; C.i,ii,iii ;D.i,ii,iv
ATL SKILLS: Thinking (Creative thinking) Make guesses, ask “what if” questions and generate testable hypotheses. Thinking, critical thinking(use brainstorming and visual diagrams to generate new ideas and inquiries.	***ATL SKILLS*** : Research (Information literacy) Make connections between various sources of information
Assessment Task with criteria: ASSESSMENT: Task 1: Summative Assessment.(In this activity, the students will assessed using criteria A.i,ii and C.i,ii,iii Task 2: Homeostasis lab activity. (In this activity, the students will be assessed using the criteria B.i,iii,iv, C.i,ii,iii and D.i,ii,iv	***Assessment Task with criteria:*** ASSESSMENT: Task 1: punnett square activity(In this activity the students will be assessed using criteria C.i,ii) Task 2: Making a DNA-RNA-AMINO ACID MODEL (In this activity, the students will be assessed using criteria A.i,ii) Task 3: Internet research about the Impacts of Mutation and Genetic engineering. (In this activity, the students will be assessed using the criteria D.i,ii,iv)
Unit 3	***Unit 4***
Title/Theme : force and newtons laws	***Title/Theme*** : Introduction to Thermodynamics
Standards : HSPS2	***Standards*** : HSPS3 , AP big ideas 4,5
content : newton1st law , 2nd law , 3rd law , applications	**content**: internal energy , heat , phase transition , latent heat , thermal conduction , convection , radiation
# of weeks: 10	***# of weeks: 6***
Key Concept(s): Change	***Key Concept(s):*** Change
Related Concept(s) : systems , consequences	***Related Concept(s):*** interaction ,energy
Global Context :scientific and global innovation	***Global Context:*** globaliztion and sustainability

Statement of Inquiry: Any change in the environment will lead to wide range of consequences.	***Statement of Inquiry:*** Human activities involving transformation of energy lead to a global change
MYP Objectives : A Knowing and understanding (i,ii,iii) B Inquiring and designing (i,ii,iii) C Processing and evaluating (i,ii,iii,iv,v) D Reflecting on the impact of science (i,ii,iii,iv)	***MYP Objective*** s: A Knowing and understanding (i,ii,iii) D Reflecting on the impact of science (i,ii,iii,iv)
ATL Skills : Social (Practice empthy); Communication (Negotiate ideas and knowledge with peers and teachers)	***ATL Skills*** : Self Management (Keep an organized and logical system of information, files and notebooks); Research (Understand and use technology systems)
Assessment Task with criteria: Assessment Task with criteria: *Assessment 1: A Knowing and understanding (i,ii,iii); * Assessment 2: A Knowing and understanding (i,ii,iii) * Lab report : Newton's second law, student will prove NSL using connected bodies B Inquiring and designing(i,ii,iii,iv) C Processing and evaluating (i,ii,iii,iv,v) *Project: Building bridges. D Reflecting on the impact of science (i,ii,iii,iv)	***Assessment Task with criteria:*** *assessment 1: A Knowing and understanding (i,ii,iii) D Reflecting on the impact of science (i,ii,iii,iv)
Unit#3	***Unit#4***
Title/Theme :Chemical Bonding	***Title/Theme*** **:Chemical Reaction**
Standards SP 1-6 NGSS HS-PS1-4 : BI2 &3 SP 1-6 NGSS HS-PS1-4 HS-PS2-6	**Standards** SP 1-6 NGSS HS-PSI-2 HS-PS2-4 HSPS1

Ionic bond and ionic compounds Chapter 7 Section 1 - 2 Pages 210 – 217 Names and formulas of ionic compounds Chapter 7 Section 3 Pages 218 – 224 Metallic bonds and properties of metals (introduction only) Chapter 7 Section 4 Pages 225 – 228 Ch. 8 Covalent Bonding Sec.1 the covalent Bond. Pg. 240-247 Sec. 2 Naming Molecule Pg. 248-252 Sec. 3 Molecular structure Pg. 253-260 Sec. 4 Molecular shapes Pg. 261-264 Sec.5 Electronegativity and polarity Pg. 265-270	Sec.1 Reactions and equations pg. 281-288. Sec.2 Classifying Chemical Reactions Pg. 289-298 Sec3. Reactions in aqueous solutions. P299-308 Sec3. Reactions in aqueous solutions. P299-308 Sec3. Reactions in aqueous solutions. P299-308
# Of Weeks 8 W / 16 Hours	***# Of Weeks*** 7 W/ 14 Hours
Key Concepts Change	***Key Concepts*** Relationships
Related Concepts Interaction, Transfer	***Related Concepts*** Balance, Form
Global Context Globalization and sustainability (human impact on the environment)	***Global Context*** FAIRNESS AND DEVOLOPMENT imagining a hopeful future
Statement of Inquiry The environmental change may result due to the human interaction.	***Statement of Inquiry*** A hopeful future may be established by balancing the forms of relationships.
MYP Objectives A. Knowing and understanding Explain scientific knowledge Apply scientific knowledge and understanding to solve problems set in familiar and unfamiliar situations. Analyze and evaluate information to make scientifically supported judgments. D. : i explain the ways in which a science is applied and used to address specific problems or issues.	***MYP Objectives*** B. Inquiring and Designing Explain a problem or question to be tested by a scientific investigation Formulate a testable hypothesis and explain it using scientific reasoning Explain how to manipulate the variables, and explain how data will be collected Design scientific investigations C. Processing and Evaluating Present collected and transformed data

ii. discuss and evaluate the various implications of using science and its applications to solve specific problem or issue iii. apply scientific language effectively. iv. document the work of others and sources of information used.	Interpret data and explain results using scientific reasoning Evaluate the validity of a hypothesis based on the outcome of the scientific investigation Evaluate the validity of the method Explain improvements or extensions to the method.
ATL Skills Thinking (critical thinking) Practice observing carefully in order to recognize problems	***ATL Skills*** Research media literacy Compare, contrast and draw connections among (multimedia resources)
Assessment Task with criteria: Written assessment against criterion A <u>WITH ALL ITS STRANDS</u> <u>ACT IT OUT</u> <u>DRAMA PLAY based on research. Criterion D</u>	***Assessment Task with criteria:*** Practical experiment in which the students will design and implement their own experiment against criteria B&C
UNIT 3	***UNIT 4***
Title/Them e: Cardiovascular system & Respiratory system / Human systems	***Title/Theme*** : Reproductive system / Human system
HS-LS1-2	HS-LS1-2:
Circulatory & Respiratory System	Male & Female Reproductive System Reproductive Cycle
# of weeks: 5	***# of weeks: 5***
Key Concept(s): System	***Key Concept(s):*** System
Related Concept(s) : Energy and Environment	***Related Concept(s):*** Form, movement, interaction
Global Context: Personal and Cultural expression	Global Context: Globalization and sustainability

Statement of Inquiry: Systems in living organisms transfer energy and neutrients from the environment to the cells where they are used to maintain life. Diet can be affected by personal and cultural choices.	Statement of Inquiry: The existence of species depend on its ability to reproduce, the human reproductive systems interact with one another to form the next generation.
MYP Objectives : B.iii, C.ii ; D.iii	***MYP Objectives:*** A.i,ii,iii ; C.ii, D.i,ii
ATL Skills: Communication 1.1, 1.11 Communication Give and receive meaningful feedback Read critically and for comprehension	***ATL Skills*** : Self-management, Thinking Self Management Bring necessary equipment and supplies to class Practice analyzing and attributing causes for failure Practice managing self-talk Practice positive thinking Consider content (What did I learn about today? What don't I yet understand? What questions do I have now?) Critical Thinking Skills interpret data identify obstacles and challenges
Assessment Task with criteria:	***Assessment Task with criteria:***
SUMMATIVE ASSESSMENT: Task 1: Students will design a heart-like house blueprint to understand the structure and function of the heart.(In this activity, the students have practiced skills that are assessed using criteria D.iii	*SUMMATIVE ASSESSMENT* : Task 1: Summative Assessment.(In this activity, the students have practiced skills that are assessed using criteria Ai,ii,iii ,C.ii ,& D.i,ii)

Task 2: Analayzing Blood Transfusion Data (In this activity, the students have practiced skills that are assessed using criteria C.ii Task 3: Tidal volume and vital capacity lab activity. (In this activity, students have practiced skills that are assessed using criteria B.iii	

Unit #5
IDU Unit: Geometrical Science
Standards
MS-PS2-3 /MS-PS2-5
# of weeks: 6
Key Concept(s): Form
Related Concept(s):Models & Creativity
Global Context Scientific and technical innovation
Statement of Inquiry: Modelling using sceintific and mathetical techniques enhances creativity
MYP Objectives *: Criteria A: Disciplinary grounding; Criteria B: synthesizing; Criteria C: Communicating; Criteria D: Reflecting*
ATL Skills: **Science:**Self-management- Reflection skills: Keep a journal to record reflections Thinking- Creative-thinking skills: Make guesses, ask "what if" questions and generate testable hypotheses Math: Coomunication - collaborate with peers and experts using a variety of techniques; Social Skills - collaboration - give and receive meaningful feedback
Assessment Task with criteria: Summative Assessment: Criterion A(I, ii) Science fair project (B (I, ii) and C(I, ii, iii) Performance task about the electrical magnet D (I, ii, iii, vi); in addition to the IDU assessment criteria, students will be assessed against subject-specific criteria as mention above.

Unit #5

Title/Theme
Waves and its applications
Standards
MS-PS4-1
MS-PS4-2
MS-PS4-3
Content
Types of waves
Waves properties-
Components of electromagnetic radiation
.Applications of waves in life -
 # OF WEEKS 5:
(s)Key Concept
Change
RELATED CONCEPT
Patterns
Movement
GLOBAL CONTEXT
Scientific and technical innovation (Modernization, industrialization and (engineering
STATEMENT OF INQUIRY
Scientists' understanding of changes and patterns in the universe is the .basis of industrial and engineering revolution
MYP objectives
B: Inquiring and designing (I, ii, iii) C: Processing and evaluating (I, ii, iii, iv, v) D: Reflecting on the impacts of science ((I, ii, iii, iv)
ATL skills

Research - Information literacy skills: Process data and report results
Communication- Communication skills: Negotiate ideas and knowledge with peers and teachers
Assessment Task with criteria
Lab report (Light Properties): B, C with all strands
Performance task: Application of waves in real life. A, D with all strands
Unit: 5
Title/Theme:
Introduction to Inheritance
STANDARDS
MS-LS3-1
MS-LS3-2
CONTENT:
chromosomes and alleles
meiosis and mitosis
DNA and protein building
Mendel's First Law and Human Genetics
Mutation and genetic diversity
 # OF WEEKS: 6
KEY CONCEPT:
Relationships
RELATED CONCEPT:
Form
Evidence
GLOBAL CONTEXT:

Identities and relationships (Identity formation)
STATEMENT OF INQUIRY:
The different relationships between forms are evidence of identities
MYP objectives:
B: Inquiring and designing (I, ii, iii)
C: Processing and evaluating (I, ii, iii, iv)
D: Reflecting on the impacts of science (I, ii, iii, iv)
ATL skills
Social skills
(Collaboration)
Listen actively to other perspectives and ideas
Self-management
(Reflection skills)
consider content
Assessment Task with criteria
Summative assessment: A
Lab report: B & C (prediction of human traits, dominant or recessive)
Performance task (Different races and human identities) D
Unit 5
TITLE: Motion in 1D
STANDARDS : MS-PS2-1 / MS-PS2-2
CONTENT *:* motion (distance/ displacement)(speed/velocity) motion description (graphs) Newton laws, net forces, contact forces.

 # OF WEEKS :5
KEY CONCEPT **:** Relationships
RELATED CONCEPT: movement and balance
GLOBAL CONTEXT: Technical and scientific innovation (Digital life, virtual environments and the Information Age)
STATEMENT OF INQUIRY *:* A closed system environment such as the Earth which is balanced uses energy to keep all things in motion and thus creates change and technological innovation.
MYP OBJECTIVES *:* A.i,ii ;B.i,iii,iv ; C.i,ii,iii
ATL SKILLS : Thinking (Creatical thinking)interpret data. Social ,collaboration skill(give and receive a meaningful feedback)
Assessment Task with criteria: *ASSESSMENT:* Task 1: Force and Motion Experiment (In this activity, the students will be assessed using the criteria B.i,iii,iv; C.,I,ii,iii) Task 2: Summative Assessment. (In this activity, the students will be assessed using the criteria A.i,ii)

Unit #5
Title/Theme **:Stoichiometry**
Standards SP 1-6 NGSS HS-PSI-2 HS-PS2-4 HSPS1

Ch.10 The mole
Sec1. Measuring matter
Sec. 2 Mass and Mole
Sec.3 Moles of Compounds
Ch.11 Stoichiometry
Sec.1Defining Stoichiometry.
Sec.2Stoichiometry Calculations.
Sec. 3 Limiting Reactants
Sec. 4 Percent Yield. □

 # Of Weeks

9 W / 18 Hours

Key Concepts

Relationships

Related Concepts

Interaction, Balance

Global Context

FAIRNESS AND DEVOLOPMENT

justice, peace and conflict mangement

Statement of Inquiry

Balance interactions leads to peaceful relationships

MYP Objectives

B. Inquiring and Designing
Explain a problem or question to be tested by a scientific investigation

Formulate a testable hypothesis and explain it using scientific reasoning

Explain how to manipulate the variables, and explain how data will be collected
Design scientific investigations
C. Processing and Evaluating

Present collected and transformed data

Interpret data and explain results using scientific reasoning

Evaluate the validity of a hypothesis based on the outcome of the scientific investigation

Evaluate the validity of the method

Explain improvements or extensions to the method.

ATL Skills

Social skills
Collaboration

Manage and resolve conflict and work collaboratively in teams

Assessment Task with criteria:

Practical lab work that is assessed against criteria B&C

UNIT 5

Title/Theme : Hemostasis / Human system

HS-LS1-3: ; HS-LS1-2:

Positive & Negative Feedback Mechanism; Thermoregulation; Glucose regulation; Water balance

# of weeks: 5

Key Concept(s): System

Related Concept(s): Form, movement, interaction

Global Context: Globalization and sustainability

Statement of Inquiry: Systems interact using negative or positive feedback with each other to form a major function, create a movement and sustain life

MYP Objectives: B.i,ii,iii,iv ,C.i,ii,iii

ATL Skills : Media literacy, Critical thinking

Media Literacy
Locate, organize, analyse, evaluate, synthesize and ethically use

information from a variety of sources and media (including digital

social media and online networks)

• Demonstrate awareness of media interpretations of events and ideas

(including digital social media)

Critical Thinking Skills
interpret data

identify obstacles and challenges

Assessment Task with criteria:

SUMMATIVE ASSESSMENT : Task 1: Homeostasis Lab.(In this activity, the students have practiced skills that are assessed using criteria B,I,ii,iii,iv &C.i,ii,iii)

Task 2: Summative Assessment.(In this activity, the students have practiced skills that are assessed using criteria C.i,ii)

Unit 6
Title/Theme: Diversity / classification
MS-LS4-2:
Linnean System of Classification ; cladograms; dichotomous key
# of weeks: 5
Key Concept(s): Identity
Related Concept(s): form, environment
Global Context: Identities and relationships

Statement of Inquiry: Organise organisms according to their form and enviroment help us to identfy their identity
MYP Objectives : B.i,ii,iv , C.i,ii ,D.i,ii
ATL Skills : Communication, self-management Communication Give and receive meaningful feedback Read critically and for comprehension Self-Management: Organization skills plan short and long term assignments; meet deadlines Keep and use a weekly planner for assignments
Assessment Task with criteria:
SUMMATIVE ASSESSMENT: Task1: Interpreting and constructing a cladogram (In this activity, the students have practiced skills that are assessed using criteria C.i,ii ,&D.i,ii

Task 2: Dichotomous Key making activity. (In this activity, the students have practiced skills that are assessed using criteria Bi,ii,iv, C.i,ii ,&D.i,ii)