

SCIENCE 2019-2020

	Grade / Unit Title	Time Frame	SOI	Key concepts	Related Concepts	Global Context	ATLs	Criterion Assessed	Content (standards, topics, knowledge, skills)
6	Cloudy With A Chance of Rainfall (Energy Transfer and Weather)	Aug-Sept	Energy and natural processes model change.	Change	Transfer, Energy	Scientific and Technical Innovation <ul style="list-style-type: none"> Systems, models, methods, processes 	Transfer Critical Thinking	Criterion A Criterion B Criterion D	<ul style="list-style-type: none"> IB Experimental Cycle Energy, Energy Transfer, Weather, (MS-PS3–5, MS-PS3-3, MS-PS3-4, MS-ESS2-6)
6	Chill Out Planet Earth (Climate Change)	Oct-Nov	Humans have a civic responsibility to evaluate evidence when examining a relationship between humans and the environment.	Relationships	Evidence, Environment	Fairness & Development <ul style="list-style-type: none"> Rights, law, civic responsibility, and the public sphere 	Information Literacy, Reflection	Criterion D Criterion C	<ul style="list-style-type: none"> Climate Change (MS-ESS3-3, MS-ESS3-5) ELA standards - integrate quantitative or technical information, analyze author's purpose (CCSS.ELA-LITERACY.RST.6-8.7, CCSS.ELA-LITERACY.RST.6-8.6)
6	Call Me On My Cell (Cells)	Dec-Jan	Systems may interact with other systems where they may have sub-systems and/or be a part of larger complex systems.	Systems	Balance, Form	Scientific and Technical Innovation <ul style="list-style-type: none"> Systems, models, methods, processes 	Communication, Creativity Thinking	Criterion A Criterion B Criterion C	<ul style="list-style-type: none"> Cell structure, living vs nonliving organisms (MS-LS1-1, MS-LS1-2) ELA standards - Follow a multi-step procedure (CCSS.ELA-LITERACY.RST.6-8.3)

6	Glorious Genetics (Genetics)	Feb	Models can represent structural and functional relationships that form individual identities.	Relationships	Models, Structure, Function	Identities and Relationships <ul style="list-style-type: none"> Identity Formation 	Affective Collaboration	Criterion A Criterion D	<ul style="list-style-type: none"> Heredity of traits in plants and animals (MS-LS1-4)) ELA Standards - determine the meaning of symbols as they relate to content (CCSS.ELA-LITERACY.RST.6-8.4)
6	Beautiful Bodies (Body Systems)	March - April	The function and interaction of systems demonstrate the interconnection between humans.	Systems	Interaction, Function	Globalization & Sustainability <ul style="list-style-type: none"> Commonality, diversity, and interconnection 	Creative Thinking Media Literacy	Criterion A Criterion C Criterion D	<ul style="list-style-type: none"> Body Systems (MS-LS1-8) ELA standards - integrate quantitative or technical information in text, compare/contrast information from text and a multimedia source (CCSS.ELA-LITERACY.RST.6-8.7, CCSS.ELA-LITERACY.RST.6-8.9)
6	Plentiful Plants (Plant Structure and Reproduction)	May	Environmental adaptations can show evidence of change and progress.	Change	Environment, Evidence	Scientific and Technical Innovation <ul style="list-style-type: none"> Adaptation, Ingenuity, and progress 	Organization Reflection	Criterion B Criterion C Criterion D	<ul style="list-style-type: none"> Plant reproduction (MS-LS3-5) ELA standards - cite textual evidence, determine central idea of source (CCSS.ELA-LITERACY.RST.6-8.1, CCSS.ELA-LITERACY.RST.6-8.2)

7	It's the tiny things that "matter" (atoms, matter, chemical and physical reactions)	5 weeks	The relationship between states of matter (and its identity/atomic particles) is a direct consequence of the interaction of energy, resulting in [possible] transformation .	Relationships	Transformation, Interaction and Consequences	Identities and Relationships *Exploring identity	Organization Communication	Criterion A, C and D(i and iii)	<u>Atoms, matter, chemical and physical reactions</u> PS1-2-PS1-3, PS1-4, PS1-5, PS1-6
7	How we Organize (Periodic Table)	7 weeks	The relationship among _____ allows us to identify patterns that we can use to model commonalities and differences in relationships . Sci. specific: The relationships among elements allows us to identify patterns on the periodic table that we can use to model commonalities and differences with chemical and physical properties/characteristics.	Relationships	Patterns Models	Identities and Relationships *Exploring identity	Information Lit (research)	Criterion D Criterion A	<u>Matter and Its Interactions</u> MS-PS1 <ul style="list-style-type: none"> • CCC - Patterns • PS1.A Structure and properties of matter • Sci. and Engineering Practices: <ul style="list-style-type: none"> ○ <u>Analyzing and Interpreting Data</u> ○ <u>Obtaining, Evaluating, and communicating information</u> CCSS.ELA-Literacy.WHST.6-8.1B

7	<p>Active and Passive Work (cellular processes)</p> <ul style="list-style-type: none"> Look at systems assignment 	8 weeks	<p>Systems are dictated by their form and balance [resulting in the sustainability of the system].</p> <p>Cellular systems are dictated by the cell's form and balance [resulting in the sustainability of the cellular system]. (Structure dictates function.)</p> <p>(Statement of Conceptual Understanding – Cellular systems depend on the form of the cell and whether or not the cell is balanced.)</p>	Systems	Form Balance	Globalization and Sustainability (focus on <u>structure and function</u> of organizations)	Communication Critical Thinking	Criterion A Criterion C	<p>LS1-2: function of a cell as a whole and ways parts of cells contribute to the function.</p> <p>LS1-6: photosynthesis MS-LS1-7: chemical reactions</p> <p>Science and Engineering Practices: Developing and using models (MS-LS1-7); Planning and Carrying out investigations; Construct Explanations and Designing Solutions (MS-LS1-6)</p> <p>LS1.A: Structure and Function - cells- special structures (MS-LS1-2)</p> <p>LS1.C: Organization for Matter (MS-LS1-6)</p> <p>Crosscutting Concept: Structure and Function/ Energy and Matter/Cause and Effect</p>
7	<p>Cycle Through/ Boundaries (Earth Sci)</p>	6.5 weeks	<p>Our Earth is continually transforming and changing due to natural and manmade interactions resulting in [positive and/or negative] consequences that may or may not be realized through scientific and technological innovation.</p>	Change	Interaction, transformation, consequences	<p>Scientific and Technical Innovation</p> <ul style="list-style-type: none"> Systems, models, processes 	Information Literacy	Criterion A Criterion D	<p>Criterion A Criterion D</p> <p>MS-ESS2-3</p>

			(Change occurs where boundaries interact and may be predicted and/or monitored through scientific and technical innovation, in such a way that consequences of transformed land is realized.)						
7	CHANGE! : Biomes, Ecology, Natural Selection		<i>Organisms</i> are continually evolving (changing) due to the ever-changing environment factors, resulting in patterns (within their genes) that can be followed to show individual [identities and] relationships between one another.	Change	Relationships Patterns	Identities and Relationships <ul style="list-style-type: none"> Identity Formation 	Critical thinking (comparing/contrasting; cause/effect; using evidence to support your position)	Criterion D	Environment/Organisms/Cycling of matter and flow of energy/ecosystem/competition LS2-1 LS2-2 LS2-3 LS2-4 LS2-5 Geologic Time ESS 1-4
7	Family Life - Endocrine system, Male and Female Reproductive systems; Puberty; Fetal development through adolescence - following chap. 16 Life Sci. text IF time look at section 5 in chapter 15 - what drugs and alcohol do to your body.	1+ week		non-IB unit					

8	Science Process skills & Metric Measurement (non IB unit, but connect to key concept systems and ATL skills communication and collaboration)	2 weeks		Systems					<p>Distinguish between variable and controlled parameters in a test</p> <p>NGSS Skills</p> <p>* Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. [Key Ideas and Details]</p> <p>* Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (graph or table) [craft and structure]</p>
8	<p>Mutant Changes</p> <p>Adapt or Die NGSS unit by SCALE</p>	5 weeks	Organisms are evolving (changing) due to environmental factors [Scientific and Technological] human innovations , resulting in patterns (within their genes) that can be followed to show individual relationships between one another.	Change	Relationships Patterns	Scientific and Tech. Innovation • adaptation, ingenuity and progress	Critical Thinking	Criterion D Criterion A	<p>LS4-1-6 (Biological Evolution: unity and diversity)</p> <p>LS3-1 (Inheritance and variation in traits)</p>
8	Breaking Barriers (Space)	5 weeks	Cultural patterns , as well as human interactions , dictate systems followed; and change only occurs if people/ systems push (established) boundaries .	Systems	Interaction, Patterns and change	<p>Orientation in Time and Space</p> <ul style="list-style-type: none"> • Scale, duration, frequency and variability • peoples, boundaries, exchange and interaction 	Media Literacy and Communication	Criterion A Criterion D	NGSS: ESS1-1 through 1-3

8	<p>You Can't Sustain Us - Interdisciplinary unit with math</p> <p>https://www.weforum.org/agenda/2019/07/earth-overshoot-day-is-here-earlier-than-ever (current article)</p>	<p>3.5 weeks</p> <ul style="list-style-type: none"> (Topic review will be for 5 days) 	<p>Modeling with data can be used to justify and interpret relationships between human population of resources and their impact on Earth's systems.</p>	Relationships	n/a	<p>Globalization and Sustainability</p> <p>* societal decision-making; economic activities and their impact on humankind and the environment.</p>	<p>Critical Thinking/ Information Literacy</p>	<p>Criterion C</p> <p>Criterion D</p>	ES3-4; LS2-1; LS2-3
8	Waves	4 weeks		Relationships	<p>Models, Patterns, Interaction/Structure & Function</p>	<p>Scientific and Technical Information</p> <p>* how humans use their understanding of scientific principles</p>	<p>Thinking: Creativity and Innovation</p>		
8	Force the motion	6 weeks	<p>Humans manipulate the interaction and balance of forces to control movement (relationships) over time.</p>	Change	<p>Interaction, Balance and Relationships</p>	<p>Orientation in Time and Space</p> <p>* scale, duration, frequency and variability</p>	<p>Communication and Creativity and Innovation</p>	<p>Criterion B</p> <p>Criterion C</p>	PS4-1-3 (Newton's Laws, PE/KE, Rate equations)
8	<p>Positive Prevention (Non-IB unit) - Follows the Red Cross Binder dictated by District (IB ATL soft skill Affective)</p>	3-3.5 weeks							

[What makes a person a scientist or engineer?](#)