## **IB MYP Horizontal/Vertical Planner**

Subject Area: 9 grade science (bio/phys) MYP Level: 4	Subject Area:	9 <sup>th</sup> grade science (bio/phys)	MYP Level:	4
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Time Frame	Unit Topic	MYP Objectives	Standards	AOI	Significant Concept	MYP Unit Question	MYP Assessment Task	MYP Criteria
(Bio)  2 weeks	Study of Life  MYP: Think  Fast!	Recall scientific knowledge and use scientific understanding to construct scientific explanations.	91333 Describe how scientific investigations and engineering processes require multi-disciplinary contributions and efforts. For example: Nanotechnology, climate change, agriculture, or biotechnology. 91343 Select and use appropriate numeric, symbolic, pictorial, or graphical representation to communicate scientific ideas, procedures and experimental results.	Human Ingenuity:  Students will reflect on how subjects have ways of thinking.	Students will create and reflect on data concerning thought processes and physical stamina to understanding ourselves.	Can you train your brain?	Final unit assessment	Criterion C: Knowledge and understanding of science.
<u>2</u> weeks	Populations  MYP: Dynamic Duo	Collect and record data. Draw conclusions consistent with the data supported by scientific reasoning.	94211 Describe factors that affect the carrying capacity of an ecosystem and relate these to population growth. 94212 Explain how ecosystems can change as a result of the introduction of one of more new species. For example: The effect of migration, localized evolution or disease organism. 91342 Determine and use	Environments: Students will develop an understanding of the effects of one environment on another.	Examine and reflect on creatively determining a logical solution to predicting what could happen in nature.	How do populations interact?	Lab Write up for Pike and Perch Fish Dynamics Investigation	Criteria D: Scientific Inquiry Criterion E: Processing Data Criterion F: Attitudes in Science

2 weeks	Intro to Genetics MYP: Pigment has a purpose!	Explain the ways science is applied and used to address specific problems or issues.	appropriate safety procedures, tools, computers and measurement instruments in science and engineering contexts. For example: Consideration of chemical and biological hazards in the lab. 91343 Select and use appropriate numeric, symbolic, pictorial, or graphical representation to communicate scientific ideas, procedures and experimental results.  94312 In the context of a monohybrid cross, apply the terms phenotype, genotype, allele, homozygous and heterozygous. 94321 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.	Health and Social Education: Students will develop awareness and understanding of themselves in the wider society.	Knowing about pigment helps me understand its importance.	Does it matter if your black or white?	Writing Assessment	Criterion A: One World Criterion B: Communication in Science
<u>2</u> weeks	Velocity, Speed and Motion	Students will design and carry out scientific investigations	9.1.2.1.3 Explain and give examples of how, in the design of a device, engineers consider how it	Human Ingenuity: Students will take action to	Engineering and design influences speed and direction.	What makes it fast?	Scientific Investigation	Criteria D: Scientific Inquiry Criteria E:

	that include	is to be manufactured,	think		Processing Data
MYP:	variables and	operated, maintained,	creatively.		Criteria F:
One Piece at	controls.	replaced and disposed of.			Attitudes in
<u>A Time</u>		9.1.2.2.2 Develop possible solutions to an engineering problem and evaluate them using conceptual, physical and mathematical models to determine the extent to which the solutions meet the design specifications.			Science

Approaches to Learning (ATL) Skills Matrix Fill in boxes with AtL Student Learning Expectations aligned to your unit. You do not have to cover each AtL skill in each unit, but try to cover them all at some point during your course.

	Organization	Collaboration	Communication	Information Literacy	Reflection	Thinking	Transfer
Unit: Think Fast!	Organization of Learning Materials: Collecting data, creating graphs and formulating conclusions.	Working in partners: taking responsibility to roles, demonstrating team work.			Reflecting on learning: How does lab relate to different stages in the learning process.		Math Transfer: using knowledge, understanding and skills across subjects to solve problems.
Unit: Dynamic Duo!			Being informed: using data to communicate understanding. Informing others: discussing results.	Selecting and organizing information: in graphical form.		Identifying problems: evaluating solutions to problems. Applying concepts: to other areas of science or math	Inquiring in different context: human to other animal population dynamics
Unit: Pigment has a purpose!		Accepting others: Respecting points of view using ideas critically. Personal challenge: understanding and		Identifying bias: using primary and secondary sources Identify controversial issues.	Reflections: analyzing prior beliefs to change personal beliefs to new information		

		respecting genetic differences.				
Unit: One Piece at a Time	Self management and time management, following a calendar to complete car and tasks necessary to understand how the car works.	Working in groups, accepting others in group, teaching others in the group.	Developing a blueprint to communicate what and how the car works, labeling the diagram to reflect what the car does and how it works, science literacy	How does the car work? What is not working? How do I fix it? How does speed and direction work with my car? Does my car go in a straight line? Why or why not?	Apply the knowledge of velocity by calculating the speed of the car over 6 meters straight. How does symmetry impact the design of the car? How can you make a car efficient?	How do the science labs (walking, marbles, etc) relate to the car?

## IB MYP Horizontal/Vertical Planner

Subject Area: 10<sup>th</sup> grade science (bio) 2011-12 only MYP Level: 5

Time Frame	Unit Topic	MYP Objectives		AOI	Significant Concept	MYP Unit Question	MYP Assessment Task	MYP Criteria
		- "	Standards					
<u>(Bio)</u>	Study of Life	Recall scientific	91333	Human	Students will	Can you train	Final unit assessment	Criterion C:
	14VD TI : I	knowledge and use	Describe how scientific	Ingenuity:	create and reflect	your brain?		Knowledge and
<u>2</u>	MYP: Think	scientific	investigations and	6	on data concerning			understanding of
<u>weeks</u>	<u>Fast!</u>	understanding to	engineering processes	Students will	thought processes			science.
		construct scientific	require multi-	reflect on how	and physical			
		explanations.	disciplinary	subjects have	stamina to			
			contributions and	ways of	understanding			
			efforts. For example:	thinking.	ourselves.			
			Nanotechnology,					
			climate change,					
			agriculture, or					
			biotechnology.					
			91343					
			Select and use					
			appropriate numeric,					
			symbolic, pictorial, or					
			graphical					
			representation to					
			communicate scientific					
			ideas, procedures and					
	Populations	Collect and record	experimental results. 94211	Environments:	Examine and	How do	Lab Write up for Pike	Criteria D:
2	Populations	data. Draw	Describe factors that	Students will	reflect on	populations	and Perch Fish	Scientific Inquiry
<u>2</u>	NAVD.	conclusions	affect the carrying			interact?	Dynamics	Criterion E:
<u>weeks</u>	MYP:	consistent with the	capacity of an	develop an understanding	creatively determining a	interacts	Investigation	Processing Data
	<u>Dynamic Duo</u>	data supported by	ecosystem and relate	of the effects	logical solution to		investigation	Criterion F:
		scientific reasoning.	these to population	of one	predicting what			Attitudes in
		scientific reasoning.	growth.	environment	could happen in			Science
			94212	on another.	nature.			Science
			Explain how ecosystems	on another.	nature.			
			can change as a result					
			of the introduction of					
			one of more new					
			species. For example:					
			The effect of migration,					
		l	ine enect of fingration,					

		1	I	I	1	1	T	
			localized evolution or					
			disease organism.					
			<u>91342</u>					
			Determine and use					
			appropriate safety					
			procedures, tools,					
			computers and					
			<u>measurement</u>					
			instruments in science					
			and engineering					
			contexts. For example:					
			Consideration of					
			chemical and biological					
			hazards in the lab.					
			91343					
			Select and use					
			appropriate numeric,					
			symbolic, pictorial, or					
			graphical					
			representation to					
			communicate scientific					
			ideas, procedures and					
			experimental results.					
<u>2</u>	Intro to	Explain the ways	94312	Health and	Knowing about	Does it	Writing Assessment	Criterion A: One
weeks	Genetics	science is applied	In the context of a	Social	pigment helps me	matter if		World
	MYP:	and used to address	monohybrid cross,	Education:	understand its	you're black		Criterion B:
	Pigment has	specific problems or	apply the terms	Students will	importance.	or white?		Communication in
	a purpose!	issues.	phenotype, genotype,	develop	'			Science
			allele, homozygous and	awareness and				
			heterozygous.	understanding				
			94321	of themselves				
			Use concepts from	in the wider				
			Mendel's laws of	society.				
			segregation and	Society.				
			independent					
			assortment to explain					
			how sorting and					
			_					
			recombination (crossing					
			over) of genes during					
			sexual reproduction					
			(meiosis) increases the					

			occurrence of variation					
			in a species.					
<u>2-3</u>	Symmotry in	Create a	91117	Environments:	Naming the	Why is a	Project Write up	Criteria A: One
weeks	Symmetry in Natural,	Create a     symmetrical	Explain how scientific	Liivii Oiliileilts:	different types of	butterfly	Froject write up	World
weeks	Built, and	design that is	and technological	Students will	symmetries found	symmetrical?		vvoriu
	Virtual	used in science,	innovations-as well as	be aware of	or created in	Symmetricar:		Criteria B:
	Environments	using math	new evidence-can	the symmetries	natural, built, and			Communication in
	Liivii Olililelits	measurement	challenge portions of, or	involved in	virtual			Science
		tools	entire accepted	natural, built,	environments and			Science
		compass, ruler,	theories and models	and virtual	how symmetry is			
		and protractor.	including, but not	environments.	used to create new			
		Use scientific	limited to: cell theory,		products.			
		language	atomic theory, theory of		products			
		correctly, use	evolution, plate tectonic					
		appropriate	theory, germ theory of					
		visual	disease, and the big					
		communication	bang theory.					
		modes and oral	Characteristics that are					
		communication	advantageous or					
		formats	disadvantageous in the					
		(presentation)	new environment.					
		to effectively	94331					
		communicate	Describe how evidence					
		ideas.	led Darwin to develop					
			the theory of natural					
			selection and common					
			descent to explain					
			evolution.					
			94332					
			Use scientific evidence,					
			including the fossil					
			record, homologous					
			structures, and genetic					
			and/or biochemical					
			similarities, to show					
			evolutionary					
			relationships among					
			species.					
			94333					
			Recognize that artificial					
			selection has led to					

offspring through
successive generations
that can be very
different in appearance
and behavior from their
distant ancestors.
94334
Explain why genetic
variation within a
population is essential
for evolution to occur.
94335
Explain how
competition for finite
resources and the
changing environment
promotes natural
selection on offspring
survival, depending on
whether the offspring
have

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	Organization	Collaboration	Communication	Information	Reflection	Thinking	Transfer
				Literacy			
	Organization of	Working in			Reflecting on		Math Transfer:
	Learning Materials:	partners: taking			learning: How does		using knowledge,
	Collecting data,	responsibility to			lab relate to		understanding and
Unit: Think	creating graphs and	roles,			different stages in		skills across subjects
Fast!	formulating	demonstrating			the learning		to solve problems.
	conclusions.	team work.			process.		

Unit: Dynamic Duo!			Being informed: using data to communicate understanding. Informing others: discussing results.	Selecting and organizing information: in graphical form.		Identifying problems: evaluating solutions to problems. Applying concepts: to other areas of science or math	Inquiring in different context: human to other animal population dynamics
Unit: Pigment has a purpose!		Accepting others: Respecting points of view using ideas critically. Personal challenge: understanding and respecting genetic differences.		Identifying bias: using primary and secondary sources Identify controversial issues.	Reflections: analyzing prior beliefs to change personal beliefs to new information		
Unit: Symmetry in Natural, Built, and Virtual Environme nts	Use spatial reasoning to create a design.	Analyze others' ideas, respecting others' points of view, using ideas critically to influence design.	Know, interpret and use a range of symmetric terminology.		Self-evaluation— including the keeping of learning in notebook and reflecting at different stages in the learning process.		Use math knowledge to create a design with symmetries.