

IB MYP Horizontal/Vertical Planner

Subject Area: 9th grade science (bio/phys) MYP Level: 4

Time Frame	Unit Topic	MYP Objectives	Standards	AOI	Significant Concept	MYP Unit Question	MYP Assessment Task	MYP Criteria
<u>(Bio)</u> <u>2 weeks</u>	<u>Study of Life</u> <u>MYP: Think Fast!</u>	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. <i>For example:</i> Nanotechnology, climate change, agriculture, or biotechnology. 91343 <i>Select and use appropriate numeric, symbolic, pictorial, or graphical representation to communicate scientific ideas, procedures and experimental results.</i>	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 weeks</u>	<u>Populations</u> <u>MYP: Dynamic Duo</u>	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. <i>For example:</i> 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

			<p>appropriate safety procedures, tools, computers and measurement instruments in science and engineering contexts. <i>For example:</i> Consideration of chemical and biological hazards in the lab. 91343 <i>Select and use appropriate numeric, symbolic, pictorial, or graphical representation to communicate scientific ideas, procedures and experimental results.</i></p>					
<u>2 weeks</u>	<u>Intro to Genetics</u> <u>MYP: Pigment has a purpose!</u>	Explain the ways science is applied and used to address specific problems or issues.	<p>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.</p>	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 weeks</u>	<u>Velocity, Speed and Motion</u>	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:

	<u>MYP:</u> <u>One Piece at</u> <u>A Time</u>	that include variables and controls.	is to be manufactured, operated, maintained, replaced and disposed of. 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.	think creatively.				Processing Data Criteria F: Attitudes in Science
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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: 10th grade science (bio) 2011-12 only MYP Level: 5

Time Frame	Unit Topic	MYP Objectives	Standards	AOI	Significant Concept	MYP Unit Question	MYP Assessment Task	MYP Criteria
<u>(Bio)</u> <u>2 weeks</u>	<u>Study of Life</u> <u>MYP: Think Fast!</u>	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. <i>For example:</i> Nanotechnology, climate change, agriculture, or biotechnology. 91343 <i>Select and use appropriate numeric, symbolic, pictorial, or graphical representation to communicate scientific ideas, procedures and experimental results.</i>	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 weeks</u>	<u>Populations</u> <u>MYP: Dynamic Duo</u>	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. <i>For example:</i> The effect of migration,	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

			<p>localized evolution or disease organism.</p> <p>91342 <u>Determine and use appropriate safety procedures, tools, computers and measurement instruments in science and engineering contexts. For example: Consideration of chemical and biological hazards in the lab.</u></p> <p>91343 <i>Select and use appropriate numeric, symbolic, pictorial, or graphical representation to communicate scientific ideas, procedures and experimental results.</i></p>					
<u>2 weeks</u>	<p><u>Intro to Genetics</u> <u>MYP: Pigment has a purpose!</u></p>	<p>Explain the ways science is applied and used to address specific problems or issues.</p>	<p>94312 In the context of a monohybrid cross, apply the terms phenotype, genotype, allele, homozygous and heterozygous.</p> <p>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</p>	<p>Health and Social Education: Students will develop awareness and understanding of themselves in the wider society.</p>	<p>Knowing about pigment helps me understand its importance.</p>	<p>Does it matter if you're black or white?</p>	<p>Writing Assessment</p>	<p>Criterion A: One World Criterion B: Communication in Science</p>

			occurrence of variation in a species.					
<u>2-3 weeks</u>	<u>Symmetry in Natural, Built, and Virtual Environments</u>	<ul style="list-style-type: none"> • Create a symmetrical design that is used in science, using math measurement tools-- compass, ruler, and protractor. • Use scientific language correctly, use appropriate visual communication modes and oral communication formats (presentation) to effectively communicate ideas. 	<p>91117 Explain how scientific and technological innovations-as well as new evidence-can challenge portions of, or entire accepted theories and models including, but not limited to: cell theory, atomic theory, theory of evolution, plate tectonic theory, germ theory of disease, and the big bang theory. Characteristics that are advantageous or disadvantageous in the new environment.</p> <p>94331 Describe how evidence led Darwin to develop the theory of natural selection and common descent to explain evolution.</p> <p>94332 Use scientific evidence, including the fossil record, homologous structures, and genetic and/or biochemical similarities, to show evolutionary relationships among species.</p> <p>94333 Recognize that artificial selection has led to</p>	Environments: Students will be aware of the symmetries involved in natural, built, and virtual environments.	Naming the different types of symmetries found or created in natural, built, and virtual environments and how symmetry is used to create new products.	Why is a butterfly symmetrical?	Project Write up	Criteria A: One World Criteria B: Communication in Science

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