

MITA International School Syllabus 2019

三田国際学園中学校・高等学校 2019年度 シラバス

Grade Level / Course 学年 / コース	S1/ Science in our daily life Practicum	Subject Area / Class 教科 / 科目	Science/ 4(ICA)	Class hours 授業時間	2 時間/週
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1学期 中間試験 Term 1 Midterm

Name of Unit, Project 単元名	Unit 1: Introducing Biology/Unit 2 Cells	Textbooks / Materials 使用教科書 / 教材	Biology by Stephen Nowicki; Houghton Mifflin Harcourt Lab Handouts/Worksheets/Lab equipment
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Unit Description 単元の概要	This unit defines science, its unifying themes, and introduces biological concepts and the early history of biology. There is specific emphasis on the scientific method, and how these processes lead to discoveries. It also reviews the chemistry of living systems. Standards: HS-LS 1. A4, HS-LS1.C.2
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Unit Standards 本単元の内容と評価規準	Others 備考
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楽 好 知	A3 Able to explain the phenomenon in one's own words.	B3 Able to predict unknown results. Based on the working hypothesis, able to design an experiment.	C3 Able to construct new concepts. Able to create an original experimental method, design and able to execute it.	<評価方法> Students will investigate recent developments in human genome modification using CRISPR- Cas9 tool. <ICT・Creation> Students will be given worksheets, quizzes and lab experiments to practice key concepts of the unit.
	A2 Understand the ties of events from simple phenomenon to more complex phenomenon. Follow a known test method.	B2 Can generalize and comprehend the connections by comparing the ties of knowledge. It is possible to consider factors that cause various phenomena.	C2 Can predict missing variables from the contradiction of known rules.	
	A1 Know basic terms, the names and roles of laboratory instruments and chemicals. Write and organize information.	B1 Accurately diagram information. Compare, classify, and analyze experiment results. Find patterns in experimental results.	C1 Able to find exceptions to rules and discuss why it is an exception. Critically evaluate the hypothesis and discover new issues.	
	Recognition	Logical Thinking	Creative Thinking	

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1学期 期末試験 Term 2 Final

Name of Unit, Project 単元名	Unit 2: Cells/ Unit 3 Genetics	Textbooks / Materials 使用教科書 / 教材	Biology by Stephen Nowicki; Houghton Mifflin Harcourt Lab Handouts/Worksheets/Lab equipment
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Unit Description 単元の概要	Unit 2 focuses on identifying the various kinds of cells, understanding their structure and function, and describe the cell cycle with emphasis on energy transfer through cellular systems. Unit 3 has emphasis on defining principles of genetic inheritance from parent to offspring, genetic makeup of an individual, and how the genetic code translates DNA information into proteins. Specific emphasis is given on how biotechnology can change an organism's DNA. Standards: HSL3.A1, HSL3.A.2, HSL3.B.1, HSL3.B.2 Standards: HS-LS 1. A4/ HS-LS1.C.2/ HS-LS2.B1, HS-LS1.C.1, HS-LS1.C.4, HSL1.B.1, HSL1.A.2, HSL1.A.3
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Unit Standards 本単元の内容と評価規準	Others 備考
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知 Understand the ties of events from simple phenomenon to more complex phenomenon. Follow a known test method.	A3 Able to explain the phenomenon in one's own words.	B3 Able to predict unknown results. Based on the working hypothesis, able to design an experiment.	C3 Able to construct new concepts. Able to create an original experimental method, design and able to execute it.	<評価方法> Students will be given worksheets, quizzes and lab experiments to practice key concepts of the unit <ICT・Creation> Students will perform projects on gene expression of modified crops using PCR.
	A2 Understand the ties of events from simple phenomenon to more complex phenomenon. Follow a known test method.	B2 Can generalize and comprehend the connections by comparing the ties of knowledge. It is possible to consider factors that cause various phenomena.	C2 Can predict missing variables from the contradiction of known rules.	
	A1 Know basic terms, the names and roles of laboratory instruments and chemicals. Write and organize information.	B1 Accurately diagram information. Compare, classify, and analyze experiment results. Find patterns in experimental results.	C1 Able to find exceptions to rules and discuss why it is an exception. Critically evaluate the hypothesis and discover new issues.	
	Recognition	Logical Thinking	Creative Thinking	

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2学期 中間試験 Term 2 Midterm

Name of Unit, Project 単元名	Unit 4: Evolution/ Unit 5: Ecology	Textbooks / Materials 使用教科書 / 教材	Biology by Stephen Nowicki; Houghton Mifflin Harcourt Lab Handouts/Worksheets/Lab equipment
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Unit Description 単元の概要	Unit 4 Discusses the basic principles of evolution and natural selection, how populations evolve, and the history of life on Earth. Unit 5 introduces principles of ecology, and its implications on modern life. Standards: HSL3.A.1, HSL1.A.2, HSL3.B.1, HSL3.B.2, HSL4.B.1, HSL4.B.2, HSL4.C.1, HSL4.C.2, HSL4.A.1
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Unit Standards 本単元の内容と評価規準			Others 備考
察	A3 Able to explain the phenomenon in one's own words.	B3 Able to predict unknown results. Based on the working hypothesis, able to design an experiment.	C3 Able to construct new concepts. Able to create an original experimental method, design and able to execute it.
好	A2 Understand the ties of events from simple phenomenon to more complex phenomenon. Follow a known test method.	B2	C2 Can predict missing variables from the contradiction of known rules.
知	A1 Know basic terms, the names and roles of laboratory instruments and chemicals. Write and organize information.	B1 Accurately diagram information. Compare, classify, and analyze experiment results. Find patterns in experimental results.	C1 Able to find exceptions to rules and discuss why it is an exception. Critically evaluate the hypothesis and discover new issues.
	Recognition	Logical Thinking	Creative Thinking

<評価方法>

Students will be given worksheets, quizzes and lab experiments to practice key concepts of the unit

<ICT・Creation>

Students will make a survey of the local flora and fauna that constitute Japan's biomes, and investigate their evolutionary background.

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2学期 期末試験 Term 2 Final

Name of Unit, Project 単元名	Unit 5: Ecology	Textbooks / Materials 使用教科書 / 教材	Biology by Stephen Nowicki; Houghton Mifflin Harcourt Lab Handouts/Worksheets/Lab equipment
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Unit Description 単元の概要	Students learn the discipline of ecology, the levels of organization in an ecosystem, and the ecological research methods. Relationships between niche and resources/ abiotic and biotic resources/ and human impact on ecosystems.
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Unit Standards 本単元の内容と評価規準			Others 備考
知	A3 Able to explain the phenomenon in one's own words.	B3 Able to predict unknown results. Based on the working hypothesis, able to design an experiment.	C3 Able to construct new concepts. Able to create an original experimental method, design and able to execute it.
好	A2 Understand the ties of events from simple phenomenon to more complex phenomenon. Follow a known test method.	B2 Can generalize and comprehend the connections by comparing the ties of knowledge. It is possible to consider factors that cause various phenomena	C2 Can predict missing variables from the contradiction of known rules.
知	A1 Know basic terms, the names and roles of laboratory instruments and chemicals. Write and organize information.	B1 Accurately diagram information. Compare, classify, and analyze experiment results. Find patterns in experimental results.	C1 Able to find exceptions to rules and discuss why it is an exception. Critically evaluate the hypothesis and discover new issues.
	Recognition	Logical Thinking	Creative Thinking

<評価方法>
Students will be given worksheets, quizzes and lab experiments to practice key concepts of the unit
<ICT・Creation>
Students will investigate the various biomes that can be found in Japan and create powerpoint presentation on the local flora and fauna that can be found there.

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3学期 期末試験 Term 3 Final

Name of Unit, Project 単元名	Unit 6: Diversity of life	Textbooks / Materials 使用教科書 / 教材	Biology by Stephen Nowicki; Houghton Mifflin Harcourt Lab Handouts/Worksheets/Lab equipment
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Unit Description 単元の概要	Students will understand and recognize the different kinds of organisms that exist in the world, how we can classify them, and what are the defining features of each organism group. Lastly they will Identify and describe the various kinds of organ systems are constitute the human body.
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Unit Standards 本単元の内容と評価規準			Others 備考
察	<p>A3 Able to explain the phenomenon in one's own words.</p> <p>B3 Able to predict unknown results. Based on the working hypothesis, able to design an experiment.</p> <p>C3 Able to construct new concepts. Able to create an original experimental method, design and able to execute it.</p>		<p><評価方法> Students will be given worksheets, quizzes and lab experiments to practice key concepts of the unit</p>
好	<p>A2 Understand the ties of events from simple phenomenon to more complex phenomenon. Follow a known test method.</p> <p>B2 Can generalize and comprehend the connections by comparing the ties of knowledge. It is possible to consider factors that cause various phenomena</p> <p>C2 Can predict missing variables from the contradiction of known rules.</p>		<p><ICT・Creation> Students will investigate the DNA molecular similarities of various organisms from different kingdoms, phyla, and classes; to see how all life is related.</p>
知	<p>A1 Know basic terms, the names and roles of laboratory instruments and chemicals. Write and organize information.</p> <p>B1 Accurately diagram information. Compare, classify, and analyze experiment results. Find patterns in experimental results.</p> <p>C1 Able to find exceptions to rules and discuss why it is an exception. Critically evaluate the hypothesis and discover new issues.</p>		
	Recognition	Logical Thinking	Creative Thinking