

MITA International School Syllabus 2018
三田国際学園中学校 平成30年度 シラバス

Grade Level / Course 学年 / コース	S1 ICA	Subject Area / Class 教科 / 科目	Basic Chemistry	Class hours 時間数	2時間 / 週	
1学期 中間試験 Term 1 Midterm						
Name of Unit, Project 単元名	Atoms: The building Blocks of Matter Arrangement of Electrons in Atoms The Periodic Law		Textbooks / Materials 使用教科書 / 教材	Modern Chemistry		
Unit Description 単元の概要	Understand the structure of an atom Understand the atomic model and how electrons can be used to predict properties of matter. Understand electron configuration and their properties Understand the periodic table and its layout.					
Class Standards 評価規準			Learning Objectives 学習内容			
楽	<p>A3 Deconstruct problems and seek additional information to supplement learned topics.</p> <p>Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.</p>	<p>B3 Create the steps of an experiment in order to test an original hypothesis. Accurately interpret data and communicate results effectively.</p> <p>Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.</p>	<p>C3 Find a way to use original experimental results to apply them in the real world. Communicate information persuasively using evidence from the investigation.</p> <p>Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.</p>	<p>A3</p>	<p>B3</p>	<p>C3 Be able to use vocabulary appropriately, written and verbal. Understand how to develop a coherent and cohesive lab experiment. Be able to use the Periodic table for their own reference. Be able to depict atomic structure. Be able to convey their own laboratory experiments in a neat, cohesive lab report, and be able to answer related questions regarding their research.</p>
				<p>A2</p>	<p>B2 Understand the meaning behind results obtained in labs and be able to convey results in a given template.</p>	<p>C2</p>

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好	<p>A2 Effectively use the key terms and models and be able to solve textbook problems of the unit.</p> <p>Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.</p>	<p>B2 Follow and perform the steps of a pre-written lab experiment in order to test a hypothesis. Use known models to carry out investigations.</p> <p>Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.</p>	<p>C2 Understand and synthesize concepts to be able to seek additional information to enrich understanding of key topics.</p>	<p>A1 Understand vocabulary. Understand basic concept of atomic structure. Know there is some logic to the periodic table. Understand basic lab procedures and be able to follow lab instructions.</p>	<p>B1 Understand there is a method behind scientific procedures, and the periodic table, and atomic structure.</p>	<p>C1 Develops ideas for lab procedures, with a concept of appropriate vocabulary, for the topic and basic structure of the experiment.</p>
	知	<p>A1 Remember the meanings of key terms and topics. Describe key models of the unit.</p>	<p>B1 Understand and identify the steps of the scientific method and how it applies to knowledge acquisition.</p>	<p>C1 Ask relevant questions and define problems to ensure understanding of key topics.</p>		
	Recognition	Logical Thinking	Creative Thinking			

Others
備考 <評価方法>
<ICT>

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1学期 期末試験 Term 1 Final

Name of Unit, Project 単元名	Chemical Formulas and Chemical Compounds Chemical Bonding	Textbooks / Materials 使用教科書 / 教材	Modern Chemistry
Unit Description 単元の概要	Understand what a chemical bond is. Understand covalent bonds. Understand ionic bonds. Understand metallic bonds. Understand chemical formulas.		
Class Standards 評価規準		Learning Objectives 学習内容	
楽	A3 Deconstruct problems and seek additional information to supplement learned topics. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.	B3 Create the steps of an experiment in order to test an original hypothesis. Accurately interpret data and communicate results effectively. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.	C3 Find a way to use original experimental results to apply them in the real world. Communicate information persuasively using evidence from the investigation. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
			A3
			B3
		A2	B2 Be able to determine what kind of bonds atoms will use to form compounds.
		A1 Know there are different types of bonds. Recognize a chemical formula and understand what it	B1
			C3 Be able to predict electron arrangement, bonding patterns given a chemical formula. Be able to communicate lab results in the form of a presentation or cohesive lab report, explain procedure and results, and field questions in a way that shows comprehension of the concepts experienced in the lab.
			C2
			C1

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	<p>Recognition</p>	<p>Logical Thinking</p>	<p>Creative Thinking</p>	
知	<p>A1 Remember the meanings of key terms and topics. Describe key models of the unit.</p>	<p>B1 Understand and identify the steps of the scientific method and how it applies to knowledge acquisition.</p>	<p>C1 Ask relevant questions and define problems to ensure understanding of key topics.</p>	
	<p>Recognition</p>	<p>Logical Thinking</p>	<p>Creative Thinking</p>	

Others 備考	<評価方法> <ICT>
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知	<p>A1 Remember the meanings of key terms and topics. Describe key models of the unit.</p>	<p>B1 Understand and identify the steps of the scientific method and how it applies to knowledge acquisition.</p>	<p>C1 Ask relevant questions and define problems to ensure understanding of key topics.</p>
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Others 備考	<評価方法> <ICT>
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2 学期 期末試験 Term 2 Final

Name of Unit, Project 単元名	Gases Solutions Ions in Aqueous Solutions and Colligative Properties	Textbooks / Materials 使用教科書 / 教材	Modern Chemistry		
Unit Description 単元の概要	Understand gas and pressure. Understand gas laws. Understand the Ideal Gas Law Understand diffusion and effusion. Understand the different types of mixtures. Understand ions and their role in aqueous solutions.				
Class Standards 評価規準		Learning Objectives 学習内容			
楽 A3 Deconstruct problems and seek additional information to supplement learned topics. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.	B3 Create the steps of an experiment in order to test an original hypothesis. Accurately interpret data and communicate results effectively. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.	C3 Find a way to use original experimental results to apply them in the real world. Communicate information persuasively using evidence from the investigation. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.	A3		
			A2	B2 Understand how to utilize gas laws. Understand different types of mixtures.	C2 Be able to rearrange gas laws to solve different problems.
			A1 Recognize the components of gas laws. Understand diffusion and effusion, different types of mixtures and the role of an ion in an aqueous solution.	B1 Know that gas laws can be rearranged and utilized to solve problems. Recognize there are different types of mixtures.	C1

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知	<p>A1 Remember the meanings of key terms and topics. Describe key models of the unit.</p>	<p>B1 Understand and identify the steps of the scientific method and how it applies to knowledge acquisition.</p>	<p>C1 Ask relevant questions and define problems to ensure understanding of key topics.</p>
	Recognition	Logical Thinking	Creative Thinking

Others 備考	<評価方法> <ICT>
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3 学期 学年末試験 Term 3 Final

Name of Unit, Project 単元名	Acids and Bases Acid-Base Titration and pH	Textbooks / Materials 使用教科書 / 教材	Modern Chemistry		
Unit Description 単元の概要	Understand the relationship between acids and bases. Understand acid-base reactions. Determine pH and titrations.				
Class Standards 評価規準		Learning Objectives 学習内容			
楽 A3 Deconstruct problems and seek additional information to supplement learned topics. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.	B3 Create the steps of an experiment in order to test an original hypothesis. Accurately interpret data and communicate results effectively. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.	C3 Find a way to use original experimental results to apply them in the real world. Communicate information persuasively using evidence from the investigation. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.	A3		
			A2	B2 Recognize relationship between acids and bases in terms of reaching equilibrium. Understand how to titrate.	C2
			A1 Understand basic properties of acids and bases and their interactions. Understand pH levels and how it correlates to acidity and basicity. Understand equilibrium.	B1	C1

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知	<p>A1 Remember the meanings of key terms and topics. Describe key models of the unit.</p>	<p>B1 Understand and identify the steps of the scientific method and how it applies to knowledge acquisition.</p>	<p>C1 Ask relevant questions and define problems to ensure understanding of key topics.</p>	
	Recognition	Logical Thinking	Creative Thinking	
Others 備考	<p><評価方法> <ICT></p>			