

都立国際高校 年間授業計画 / Tokyo Metropolitan Kokusai High School Course Syllabus

○ 科目基礎情報 ( Course information )

開講年度 ( Academic year )	令和7年度 ( 2025 年度 )
開講学科 ( Department )	国際学科国際バカロレアコース / IBDP (International Baccalaureate Diploma Programme)
教科 ( Subject Area )	Science
科目 ( Subject )	Basic Biology
学年・クラス ( Grade・Class )	1st Grade Class A~F
単位数 ( Number of units )	2
使用教科書 ( Text Books )	生物基礎 (東京書籍)
校外学習 ( Field trip )	None

○ 教科の目標 ( Goals of the subject area )

<p>【知識及び技能】 ( Knowledge and Skills )</p> <ul style="list-style-type: none"> <li>acquire a body of knowledge, methods and techniques that characterize science and technology</li> <li>develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.</li> </ul> <p>【思考力、判断力、表現力等】 ( Ability to think, make judgements, express themselves )</p> <ul style="list-style-type: none"> <li>apply and use a body of knowledge, methods and techniques that characterize science and technology</li> <li>develop an ability to analyse, evaluate and synthesize scientific information</li> <li>develop experimental and investigative scientific skills including the use of current technologies</li> </ul> <p>【学びに向かう力、人間性等】 ( Motivation to learn, Humanity )</p> <ul style="list-style-type: none"> <li>appreciate scientific study and creativity within a global context through stimulating and challenging opportunities</li> <li>develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities</li> </ul>
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○ 科目の目標 ( Goals of the subject )

【知識及び技能】 ( Knowledge and Skills )	【思考力、判断力、表現力等】 ( Ability to think, make judgements, express themselves )	【学びに向かう力、人間性等】 ( Motivation to learn, Humanity )
Demonstrate knowledge and understanding of: a. facts, concepts and terminology b. methodologies and techniques c. communicating scientific information	Apply: a. facts, concepts and terminology b. methodologies and techniques c. methods of communicating scientific information.	Demonstrate the appropriate research, experimental, and personal skills necessary to carry out insightful and ethical investigations.

○ 授業計画 ( Course schedule )

	単元の具体的な指導目標 Unit Objectives	指導項目・内容 Topic / Contents	評価規準 Evaluation Criteria	知	思	態	Alotted hours 配当 時数
				①	②	③	
1学期 ( 1st semester )	<p>【Knowledge and Skills】</p> <ul style="list-style-type: none"> <li>Develop and understanding of the similarities and differences between all forms of life.</li> <li>Understand how energy is exchanged within and organisms and between organisms in an ecosystem.</li> </ul> <p>【Ability to think, make judgements, express themselves】</p> <ul style="list-style-type: none"> <li>Be able explain how all organisms have developed from a single ancestor and provide evidence.</li> <li>Construct a food web, food chain and a pyramid of energy for a given ecosystem.</li> </ul> <p>【Motivation to learn, Humanity】</p> <ul style="list-style-type: none"> <li>Engages actively in discussions and class tasks</li> <li>Work collaboratively with other classmates during practicals and class tasks.</li> </ul>	<p>Topic</p> <ul style="list-style-type: none"> <li>Diversity and commonality of life</li> </ul> <p>Contents</p> <ul style="list-style-type: none"> <li>Similarity in diverse life</li> </ul> <p>Topic</p> <ul style="list-style-type: none"> <li>Biological activities and energy</li> </ul> <p>Contents</p> <ul style="list-style-type: none"> <li>Cells: The universal unit of life</li> <li>Energy and metabolism</li> <li>Enzyme for energy metabolism</li> <li>Energy and metabolism in cells</li> </ul>	<p>①【Knowledge/Skills】</p> <ul style="list-style-type: none"> <li>Short test, Examination, Lab report</li> </ul> <p>②【Ability to think/make judgements/express themselves】</p> <ul style="list-style-type: none"> <li>Examination, Poster presentation</li> </ul> <p>③【Attitude towards learning proactively】</p> <ul style="list-style-type: none"> <li>Reflection</li> </ul>	○	○	○	6
	<p>【Knowledge and Skills】</p> <ul style="list-style-type: none"> <li>Understand what is the function of DNA and how it controls expression of traits in organisms</li> </ul> <p>【Ability to think, make judgements, express themselves】</p> <ul style="list-style-type: none"> <li>Draw diagrams and presentations explaining the structure of DNA, Nucleotides.</li> <li>Extracting DNA experiment.</li> </ul> <p>【Motivation to learn, Humanity】</p> <ul style="list-style-type: none"> <li>Engages actively in discussions and class tasks</li> <li>Work collaboratively with other classmates during practicals and class tasks.</li> </ul>	<p>Topic</p> <ul style="list-style-type: none"> <li>Organisms and genes</li> </ul> <p>Contents</p> <ul style="list-style-type: none"> <li>Accurate transmission of genetic information</li> <li>Structure of DNA</li> </ul>	<p>①【Knowledge/Skills】</p> <ul style="list-style-type: none"> <li>Short test, Examination, Lab report</li> </ul> <p>②【Ability to think/make judgements/express themselves】</p> <ul style="list-style-type: none"> <li>Examination, Poster presentation</li> </ul> <p>③【Attitude towards learning proactively】</p> <ul style="list-style-type: none"> <li>Reflection</li> </ul>	○	○	○	8
	定期考査 Examination			○	○		1
	<p>【Knowledge and Skills】</p> <ul style="list-style-type: none"> <li>Understand that DNA is responsible for the storage of genetic information in organisms and how.</li> </ul> <p>【Ability to think, make judgements, express themselves】</p> <ul style="list-style-type: none"> <li>Draw diagrams and presentations explaining the Cell cycle and DNA replication.</li> </ul> <p>【Motivation to learn, Humanity】</p> <ul style="list-style-type: none"> <li>Engages actively in discussions and class tasks</li> <li>Work collaboratively with other classmates during practicals and class tasks.</li> </ul>	<p>Topic</p> <ul style="list-style-type: none"> <li>Organisms and genes</li> </ul> <p>Contents</p> <ul style="list-style-type: none"> <li>Genome and genetic information</li> </ul>	<p>①【Knowledge/Skills】</p> <ul style="list-style-type: none"> <li>Short test, Examination, Lab report</li> </ul> <p>②【Ability to think/make judgements/express themselves】</p> <ul style="list-style-type: none"> <li>Examination, Poster presentation</li> </ul> <p>③【Attitude towards learning proactively】</p> <ul style="list-style-type: none"> <li>Reflection</li> </ul>	○	○	○	6

	単元の具体的な指導目標 Unit Objectives	指導項目・内容 Topic / Contents	評価規準 Evaluation Criteria	知 ①	思 ②	態 ③	配当 時数
	<p>【Knowledge and Skills】</p> <ul style="list-style-type: none"> <li>Understand the mechanisms of how DNA replication occurs</li> <li>【Ability to think, make judgements, express themselves】</li> <li>Draw diagrams and presentations explaining Transcription, translation, protein structure, and gene expression.</li> </ul> <p>【Motivation to learn, Humanity】</p> <ul style="list-style-type: none"> <li>Engages actively in discussions and class tasks</li> <li>Work collaboratively with other classmates</li> </ul>	<p>Topic</p> <ul style="list-style-type: none"> <li>Faithful delivery of genetic information</li> </ul> <p>Contents</p> <ul style="list-style-type: none"> <li>DNA replication</li> <li>Cell cycle</li> </ul>	<p>①【Knowledge/Skills】</p> <ul style="list-style-type: none"> <li>Short test, Examination, Lab report</li> </ul> <p>②【Ability to think/make judgements/express themselves】</p> <ul style="list-style-type: none"> <li>Examination, Poster presentation</li> </ul> <p>③【Attitude towards learning proactively】</p> <ul style="list-style-type: none"> <li>Reflection</li> </ul>	○	○	○	6
	定期考査 Examination			○	○		1
2学期 (2nd semester)	<p>【Knowledge and Skills】</p> <ul style="list-style-type: none"> <li>Understand the mechanisms of how Proteins are synthesised from the information in DNA.</li> <li>【Ability to think, make judgements, express themselves】</li> <li>Draw diagrams and presentations explaining Transcription, translation, protein structure, and gene expression.</li> </ul> <p>【Motivation to learn, Humanity】</p> <ul style="list-style-type: none"> <li>Engages actively in discussions and class tasks</li> <li>Work collaboratively with other classmates</li> </ul>	<p>Topic</p> <ul style="list-style-type: none"> <li>Genetic information and protein synthesis</li> </ul> <p>Contents</p> <ul style="list-style-type: none"> <li>Stream of genetic information</li> <li>Transcription</li> <li>Translation</li> <li>Gene expression and life process</li> </ul>	<p>①【Knowledge/Skills】</p> <ul style="list-style-type: none"> <li>Short test, Examination, Lab report</li> </ul> <p>②【Ability to think/make judgements/express themselves】</p> <ul style="list-style-type: none"> <li>Examination, Poster presentation</li> </ul> <p>③【Attitude towards learning proactively】</p> <ul style="list-style-type: none"> <li>Reflection</li> </ul>	○	○	○	15
	定期考査 Examination			○	○		1
2学期 (2nd semester)	<p>【Knowledge and Skills】</p> <ul style="list-style-type: none"> <li>Understand the concept of homeostasis and how the internal environment is controlled.</li> <li>【Ability to think, make judgements, express themselves】</li> <li>Draw and label the liver, kidney and heart, describing structure and explaining function.</li> </ul> <p>【Motivation to learn, Humanity】</p> <ul style="list-style-type: none"> <li>Engages actively in discussions and class tasks</li> <li>Work collaboratively with other classmates during practicals and class tasks.</li> </ul>	<p>Topic</p> <ul style="list-style-type: none"> <li>Internal environment</li> </ul> <p>Contents</p> <ul style="list-style-type: none"> <li>Characteristics of internal environment</li> <li>Control of the internal Environment</li> <li>Organs supporting the internal environment</li> <li>Heart and blood circulation</li> </ul>	<p>①【Knowledge/Skills】</p> <ul style="list-style-type: none"> <li>Short test, Examination, Lab report</li> </ul> <p>②【Ability to think/make judgements/express themselves】</p> <ul style="list-style-type: none"> <li>Examination, Poster presentation</li> </ul> <p>③【Attitude towards learning proactively】</p> <ul style="list-style-type: none"> <li>Reflection</li> </ul>	○	○	○	15
	定期考査 Examination			○	○		1
3学期 (3rd semester)	<p>【Knowledge and Skills】</p> <ul style="list-style-type: none"> <li>Understand the structure and function of antibodies.</li> <li>Understand innate and adaptive immunity.</li> <li>【Ability to think, make judgements, express themselves】</li> <li>Drawing diagrams and presenting information explaining Innate and adaptive immunity and antibody structure and function.</li> </ul> <p>【Motivation to learn, Humanity】</p> <ul style="list-style-type: none"> <li>Engages actively in discussions and class tasks</li> <li>Work collaboratively with other classmates during practicals and class tasks.</li> </ul>	<p>Topic</p> <ul style="list-style-type: none"> <li>Immunity</li> </ul> <p>Contents</p> <ul style="list-style-type: none"> <li>Innate immunity</li> <li>Adaptive immunity</li> <li>Immunity and human diseases</li> </ul>	<p>①【Knowledge/Skills】</p> <ul style="list-style-type: none"> <li>Short test, Examination, Lab report</li> </ul> <p>②【Ability to think/make judgements/express themselves】</p> <ul style="list-style-type: none"> <li>Examination, Poster presentation</li> </ul> <p>③【Attitude towards learning proactively】</p> <ul style="list-style-type: none"> <li>Reflection</li> </ul>	○	○	○	10
	定期考査 Examination			○	○		1
3学期 (3rd semester)	<p>【Knowledge and Skills】</p> <ul style="list-style-type: none"> <li>Understand how vegetation is established and distributed within different ecosystems.</li> <li>【Ability to think, make judgements, express themselves】</li> <li>Students should be able to explain the different biomes (environments) and their distribution in relation to the equator and the poles.</li> </ul> <p>【Motivation to learn, Humanity】</p> <ul style="list-style-type: none"> <li>Engages actively in discussions and class tasks</li> <li>Work collaboratively with other classmates during practicals and class tasks.</li> </ul>	<p>Topic</p> <ul style="list-style-type: none"> <li>Diversity and distribution of vegetation</li> </ul> <p>Contents</p> <ul style="list-style-type: none"> <li>Vegetation and ecosystems</li> <li>Succession of vegetation</li> </ul>	<p>①【Knowledge/Skills】</p> <ul style="list-style-type: none"> <li>Short test, Examination, Lab report</li> </ul> <p>②【Ability to think/make judgements/express themselves】</p> <ul style="list-style-type: none"> <li>Examination, Poster presentation</li> </ul> <p>③【Attitude towards learning proactively】</p> <ul style="list-style-type: none"> <li>Reflection</li> </ul>	○	○	○	7
	定期考査 Examination			○	○		1

総授業時数 Total hours	78
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