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

## 〇 科目基礎情報(Course information)

開講年度	(	Academic year	)	令和4年度(2022 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	)	Sciece
科目	(	Subject	)	Basic Physics
担当者	(	Subject Teacher	)	
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	)	高等学校 考える物理基礎(啓林館)
校外学習	(	Field trip	)	None

## 〇 教科の目標 (Goals of the subject area )

【知識及び技能】 (Knowledge and Skills) •acquire a body of knowledge, methods and techniques that characterize science and technology •develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.
【思考力、判断力、表現力等】 (Ability to think, make judgements, express themselves) •apply and use a body of knowledge, methods and techniques that characterize science and technology •develop an ability to analyse, evaluate and synthesize scientific information •develop experimental and investigative scientific skills including the use of current technologies
【学びに向かう力、人間性等】 (Motivation to learn, Humanity) ・appreciate scientific study and creativity within a global context through stimulating and challenging opportunities ・develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities
〇 科目の目標 ( Goals of the subject )

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

Alotted

## O 授業計画 (Course schedule)

0	受集計画(Course schedule)						hours
	単元の具体的な指導目標	指導項目・内容	評価規準	知	思	態	配当
	Unit Objectives	Topic / Contents	Evaluation Criteria	0	0	6	時数
semester)	Mechanics (Equations of motion) [Knowledge and Skills] - Develop understanding of equations of motion [Ability to think, make judgements, express themselves] - Be able to use equations of motion to solve problems - Be able to apply equations of motion to carry out practical investigation [Motivation to learn, Humanity] - Engages actively in the practicals + Work collaboratively with other classmates during practicals	Contents: • Displacement, velocity and acceleration • Equations of motion Teaching materials: • Textbook, PowerPoint slides	<ul> <li>Knowledge/Skills]</li> <li>Short test, Examination, Lab report</li> <li>Ability to think/make judgements/express themselves</li> <li>Examination, Poster presentation</li> <li>Attitude towards learning proactively</li> <li>Reflection</li> </ul>	0	0	0	10
sem	定期考查 Examination			0	0		1
1 学期 ( 1st s	Mechanics (Force / Work) [Knowledge and Skills] • Develop understanding of force and energy • Be able to explain the motion from the perepctive of both force and energy [Ability to think, make judgements, express themselves] • Be able to use Newton's equations of motion to solve problems [Motivation to learn, Humanity] • Engages actively in the practicals • Work collaboratively with other classmates during practicals	Contents: • Newton's three laws of motion, work and energy Teaching materials: • Textbook, PowerPoint slides	<ul> <li>● [Knowledge/Skills]</li> <li>•Short test, Examination, Lab report</li> <li>④ [Ability to think/make judgements/express themselves]</li> <li>•Examination, Poster presentation</li> <li>④ [Attitude towards learning proactively]</li> <li>•Reflection</li> </ul>	0	0	0	10
	定期考查 Examination			0	0		1

The many basis if you introduce of the max is the north of the provide interval is the north of the		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 ❶	思 2	態 8	配当 時数
Fixed status         - 0.00000000000000000000000000000000000		[Knowledge and Skills] • Develop understanding of heat and how it flows • Develop understanding of heat transfer and thermal equilibrium [Ability to think, make judgements, express themselves] • Be able to use Q=mc∆T to solve problems [Motivation to learn, Humanity] • Engages actively in the practicals • Work collaboratively with other	<ul> <li>Heat, temperature, Q=mc∆T, types of heat transfer Teaching materials:</li> </ul>	Short test, Examination, Lab report     (Ability to think/make judgements/express themselves)     Examination, Poster presentation     (Attitude towards learning proactively)	0	0	0	9
Bit Manual Convertige Advancements         Contracts:         Contracts:<		[Knowledge and Skills] • Develop understanding of the motion of a piston • Develop understanding of entropy [Ability to think, make judgements, express themselves] • Be able to analyze PV-graph of a piston cycle [Motivation to learn, Humanity] • Engages actively in the practicals • Work collaboratively with other classmates during practicals.	• Different kinds of engine cycle, 1st and 2nd law of thermodynamics, Carnot cycle Teaching materials:	Short test, Examination, Lab report     (Ability to think/make judgements/express themselves)     Examination, Poster presentation     (Attitude towards learning proactively)	0	0	0	8
	벫(2nc	定期考査 Examination			0	0		1
If Crowledge and Skils]       ·Standing wave, characteristics of sourd, beat, harmonics in open-and and themselves]       ·Storut test, Examination, Lab report       ·Storut test, Examination, Lab report         If Chality to think, make judgements, express themselves]       ·Standing wave, characteristics of sourd, beat, harmonics in open-and and bipes       ·Storut test, Examination, Coster presentation       ·Storut test, Examination, Poster presentation         'Be able to calculate frequencies of open/closed end pipes       ·Textbook, PowerPoint slides       ·Storut test, Examination, Eabre report       ·Storut test, Examination, Poster presentation         'Emarges actively in the practicals       ·Textbook, PowerPoint slides       ·Storut test, Examination, Lab report       ·Storut test, Examination, Poster presentation         'Examination       ·Contents:       ·Textbook, PowerPoint slides       ·Storut test, Examination, Lab report         'Examination       ·Contents:       ·Contents:       ·Contents:       ·Storut test, Examination, Lab report         'Examination       ·Contents:       ·Contents:       ·Contents:       ·Storut test, Examination, Lab report         'Examination, Poster presentation       ·Contents:       ·Contents:       ·Contents:       ·Examination, Poster presentation         'Develop understanding of magnetic field around a soid magnetian:       ·Nort test, Examination, Lab report       ·Examination, Poster presentation       ·Examination, Poster presentation	2	Wave (Travelling wave) [Knowledge and Skills] • Develop understanding of waves and their properties • Develop understanding of displacement- time, displacement-distance graph [Ability to think, make judgements, express themselves] • Be able to use wave equation to solve problems [Motivation to learn, Humanity] • Engages actively in the practicals • Work collaboratively with other	Terminologies, longitudinal and transverse wave, displacement-distace graph and displacement-time graph, wave equation, reflection of waves, superposition of waves Teaching materials:	Short test, Examination, Lab report     (Ability to think/make judgements/express themselves)     Examination, Poster presentation     (Attitude towards learning proactively)	0	0	0	8
Examination         Contents:         Charges, Ohm's Law, parallel and series circuits, Joule heating effect, dired and a demining our static electricity and a therming current and ohm's law express themselves]         Contents:         Charges, Ohm's Law, parallel and series circuits, Joule heating effect, dired and a demining current (Ability to think/make judgements, express themselves]         Contents:         Charges, Ohm's Law, parallel and series circuits, Joule heating effect, dired and ohm's law express themselves]         Contents:         Charges, Ohm's Law, parallel and series circuits, Joule heating effect, dired and ohm's law express themselves]         Contents:         Charges, Ohm's Law, parallel and series circuits, Joule heating effect, dired and ohm's law express themselves]         Contents:         Contents: <thcontedge skills]<="" th=""> <thcontents:< th=""></thcontents:<></thcontedge>		[Knowledge and Skills] • Develop understanding of standing wave in musical instruments [Ability to think, make judgements, express themselves] • Be able to calculate frequencies of sound at different harmonics for open/closed end pipes [Motivation to learn, Humanity] • Engages actively in the practicals • Work collaboratively with other	Standing wave, characteristics of sound, beat, harmonics in open-end and closed-end pipes Teaching materials:	•Short test, Examination, Lab report @(Ability to think/make judgements/express themselves) •Examination, Poster presentation @(Attitude towards learning proactively)	0	0	0	8
[Knowledge and Skills]       · Charges, Ohm's Law, parallel and obvious circuits, Joule heating effect, direct of Develop understanding of static electricity and alternting current Teaching materials:       · Short test, Examination, Lab report         · Develop understanding of electric circuits and ohm's law       · Teaching materials:       · Short test, Examination, Lab report         · Develop understanding of electric circuits and ohm's law       · Teaching materials:       · Short test, Examination, Lab report         · Develop understance for a given electric circuits [Motivation to learn, Humanity]       · Textbook, PowerPoint slides       · Examination, Poster presentation         · Engages actively in the practicals       · Ontents:       · Textbook, PowerPoint slides       · Charges, Ohm's Law, parallel and electric circuits and alternting current         · Evelop understance for a given electric circuits       · Contents:       · Textbook, PowerPoint slides       · Contents:         · Work collaboratively with other classmates during practicals       · Ontents:       · Magnetic field around a solid magnet around a solid magnet around a solid magnet:       · Magnetic field around a solid magnet around a solid magnet is indicator presentation       · Short test, Examination, Lab report       · Short test, Examination, Poster presentation         · Develop understanding of magnetic field around a solid magnet around a solid magnet is proved punderstanding of magnetic field around a solid magnet is proved punderstanding of magnetic field around a solid magnet is proved punderstanding of magnetic field around a solid magnet i		Examination			0	0		1
	3学期(3rd semester)	[Knowledge and Škills] • Develop understanding of static electricity • Develop understanding of electric circuits and ohm's law [Ability to think, make judgements, express themselves] • Be able to calculate voltage, current or resistance for a given electric circuits [Motivation to learn, Humanity] • Engages actively in the practicals • Work collaboratively with other	Charges, Ohm's Law, parallel and series circuits, Joule heating effect, direct and alternting current Teaching materials:	•Short test, Examination, Lab report @(Ability to think/make judgements/express themselves) •Examination, Poster presentation @(Attitude towards learning proactively)	0	0	0	12
		around a solid magnet • Develop understanding of magnetic field around current [Ability to think, make judgements, express themselves] • Be able touse right-hand grip rule and left-hand Fleming's rule to determine the direction of ginduced magnetic field [Motivation to learn, Humanity] • Engages actively in the practicals • Work collaboratively with other classmates during practicals	Magnetic field around a solid magnet and induced by electric current, electromagnetic induction, Lenz's law, transformer Teaching materials:	•Short test, Examination, Lab report @(Ability to think/make judgements/express themselves) •Examination, Poster presentation @(Attitude towards learning proactively)	0	0	0	8
					0	0		1

総授業時数 Total hours 78