

DEVIL PHYSICS

BADDEST CLASS ON CAMPUS

IB PHYSICS SYLLABUS

Notes:

- *Our school year is divided into six, 6-week grading periods*
- *The last 6-week grading period for seniors is devoted to IB exams and graduation activities*
- *In completing the HL Core requirements, SL classes will complete their core and options A, B, and C*
- *While HL is completing their options at the end of the senior year, SL students may complete the options with the HL students or other options through independent study, conduct additional Internal Assessments, write a research paper on a topic in modern physics, or do a mini extended essay.*

11th Grade, 1st Six Weeks

TSOKOS	IB TOPIC	SL	HL	DESCRIPTION
1	1	X	X	Physics and Physical Measurement
1.1	1.1	X	X	The Realm of Physics
1.2	1.2	X	X	T – Uncertainties and Errors I – Measurement and Uncertainties
1.3	1.2	X	X	T – Mathematical and Graphical Techniques
1.4	1.3	X	X	Vectors and Scalars
1.5	1.2	X	X	T – Graphical Analysis and Uncertainties I – Measurement and Uncertainties

11th Grade, 2nd Six Weeks

TSOKOS	IB TOPIC	SL	HL	DESCRIPTION
2	2	X	X	Mechanics
2.1	2.1	X	X	Kinematics
2.2	2.1	X	X	Motion With Constant Acceleration
2.3	2.2	X	X	T – The Concept of Force I – Forces and Dynamics
2.4	2.2	X	X	T – Newton's First Law I – Forces and Dynamics
2.5	2.2	X	X	T – Newton's Second and Third Laws I – Forces and Dynamics
2.6	2.2	X	X	T – Linear Momentum I – Forces and Dynamics

11th Grade, 3rd Six Weeks

2.7	2.3	X	X	Work, Energy and Power
2.8	2.4	X	X	Uniform Circular Motion
2.9	2.4, 9.2	X	X	T – The Law of Gravitation I - Uniform Circular Motion
2.10	9.1		X	T – Projectile Motion I - Uniform Circular Motion
2.11	9.2, 9.4		X	T – Motion in a Gravitational Field I - Uniform Circular Motion

11th Grade, 4th Six Weeks

TSOKOS	IB TOPIC	SL	HL	DESCRIPTION
3	3	X	X	Thermal Physics
3.1	3.1	X	X	Thermal Concepts
3.2	3.2	X	X	Thermal Properties of Matter
3.3	10.2		X	T – Ideal Gases I – Processes
3.4	10.1, 10.3		X	T – Thermodynamics I – Thermodynamics, Second Law of Thermodynamics and Entropy
TSOKOS	IB TOPIC	SL	HL	DESCRIPTION
4	4	X	X	Oscillations and Waves
4.1	4.1, 4.2, 4.3	X	X	T - Simple Harmonic Motion (SHM) I – 4.1, Kinematics of Simple Harmonic Motion (SHM), 4.2, Energy Changes During SHM, 4.3, Forced Oscillations and Resonance
4.2	4.4	X	X	Travelling Wave Characteristics

11th Grade, 5th Six Weeks

4.3	4.5	X	X	T – Wave Phenomenon I: Reflection and Refraction I – Wave Properties
4.4	4.5	X	X	T – Wave Phenomenon II: Diffraction and Interference I – Wave Properties
4.5	HL-11.2 SL-Opt A3	Opt A3	X	The Doppler Effect
4.6	HL-11.1 SL-Opt A2	Opt A2	X	Standing Waves
4.7	HL-11.3 SL-Opt A4	Opt A4	X	Diffraction
4.8	HL-11.4 SL-Opt A5	Opt A5	X	Resolution

11th Grade, 6th Six Weeks

4.9	HL-11.5 SL-Opt A6	Opt A6	X	Polarization
Opt A1	SL-Opt A1	Opt A1		The Eye and Sight
TSOKOS	IB TOPIC	SL	HL	DESCRIPTION
5	5 6 9 12	X	X	T – Electricity and Magnetism I-5 – Electric Current I-6 – Fields and Forces I-9 – Motion in Fields I-12 – Electromagnetic Induction
5.1	5.1	X	X	T – Electric Charge I – Electric Potential Difference, Current and Resistance
5.2	5.1	X	X	T – Electric Field and Electric Potential I – Electric Potential Difference, Current and Resistance
5.3	6.2, 9.3		X	T – Electric Field and Electric Potential I – Electric Force and Field

12th Grade, 1st Six Weeks

5.4	5.1	X	X	T – Electric Current and Electric Resistance I – Electric Potential Difference, Current and Resistance
5.5	5.2	X	X	Electric Circuits
5.6	6.3	X	X	T – Magnetic Fields I – Magnetic Force and Fields
5.7	12.1		X	T – Electromagnetic Induction I – Induced Electromagnetic Force (emf)
5.8	12.2 12.3		X	T/I – Alternating Current I – Transmission of Electrical Power

12th Grade, 2nd Six Weeks

TSOKOS	IB TOPIC	SL	HL	DESCRIPTION
6	7 13	X	X	T – Atomic and Nuclear Physics I-7 – Atomic and Nuclear Physics I-13 – Quantum Physics and Nuclear Physics
6.1	7.1	X	X	The Atom and Its Nucleus
6.2	7.2	X	X	Radioactivity / Radioactive Decay
6.3	7.3	X	X	Nuclear Reactions, Fission and Fusion
6.4	13.1 SL Opt B	Opt B	X	T – Interactions Of Matter With Energy I – Quantum Physics

6.5	13.1 SL Opt B	Opt B	X	T – Quantum Theory and the Uncertainty Principle I – Quantum Physics
6.6	13.2 SL Opt B	Opt B	X	Nuclear Physics

12th Grade, 3rd Six Weeks

TSOKOS	IB TOPIC	SL	HL	DESCRIPTION
7	8	X	X	Energy, Power and Climate Change
7.1	8.1 8.2 8.3 8.4	X	X	Energy Degradation and Power Generation World Energy Sources Fossil Fuel Power Production Non-Fossil Fuel Power Production
7.2	8.5 8.6	X	X	Greenhouse Effect Global Warming

TSOKOS	IB TOPIC	SL	HL	DESCRIPTION
8	14	Opt C	X	Digital Technology
8.1	14.1 SL Opt C1	Opt C SL-Only	X	Analog and Digital Signals
8.2	14.2 SL Opt C2	Opt C SL-Only	X	Data Capture; Digital Imaging Using Charge-Coupled Devices
HL Opt F5	SL Opt C3	Opt C SL-Only	Opt F5 HL-Only	Electronics
HL Opt F6	SL Opt C4	Opt C SL-Only	Opt F6 HL-Only	Electronics

12th Grade, 4th and 5th Six Weeks

- ***HL completes two options***
- ***SL may***
 - ***complete additional options along with HL or separately through independent study***
 - ***complete a mini-EE for class grade only***
 - ***conduct a research paper on a topic in modern physics***
 - ***accomplish additional Internal Assessments***
 - ***accomplish a program of review as approved by the teacher***

12th Grade, Sixth Six Weeks

Exam study and exams.

OPTIONS

TSOKOS	IB TOPIC	SL	HL	DESCRIPTION
E	E	Opt E	Opt E	Astrophysics
E1	E1	Opt E	Opt E	Introduction to the Universe
E2	E2	Opt E	Opt E	Stellar Radiation and Stellar Types
E3	E3	Opt E	Opt E	Stellar Objects and Distances
E4	E4	Opt E	Opt E	Cosmology
E5	E5		Opt E HL-Only	Stellar Processes and Stellar Evolution
E6	E6		Opt E HL-Only	Galaxies and the Expanding Universe

TSOKOS	IB TOPIC	SL	HL	DESCRIPTION
F	F	Opt F	Opt F	Communications
F1	Both - F1	Opt F	Opt F	Radio Communications
F2	Both - F2	Opt F	Opt F	T – Analog and Digital Signals I – Digital Signals
F3	Both - F3	Opt F	Opt F	Optic Fibre Transmission
F4	Both - F4	Opt F	Opt F	Channels of Communication
F5	HL Only - F5 SL – C3	Opt F	Opt F HL-Only	Electronics
F6	HL Only - F6 SL – C4	Opt F	Opt F HL-Only	Mobile Phone System

TSOKOS	IB TOPIC	SL	HL	DESCRIPTION
G	G	Opt G	Opt G	Electromagnetic Waves
G1	G1	Opt G	Opt G	T – Light I – Nature of EM Waves and Light Sources
G2	G2	Opt G	Opt G	Optical Instruments
G3	G3,G4	Opt G	Opt G	Interference and Diffraction
G4	G5		Opt G HL-Only	X-Rays
G5	G6		Opt G HL-Only	Thin Film Interference

TSOKOS	IB TOPIC	SL	HL	DESCRIPTION
H	H	Opt D	Opt H HL-Only	T – Special and General Relativity I – Relativity
H1	H1	Opt D1	Opt H	T – The Principle of Special Relativity I – Introduction to Relativity
H2	H2	Opt D2	Opt H	T – The Effects of Special Relativity I – Concepts and Postulates of Special Relativity
H3	H4, H5		Opt H HL-Only	Consequences of and Evidence for Special Relativity

H4	H3, H6	Opt D3	Opt H	T – Relativistic Mechanics I – Relativistic Kinematics, Relativistic Momentum and Energy
H5	H7, H8		Opt H HL-Only	T – General Relativity I – General Relativity and Evidence to Support General Relativity

TSOKOS	IB TOPIC	SL	HL	DESCRIPTION
I	I		Opt H HL-Only	T – Biomedical Physics I – Medical Physics
I1	I1		Opt H HL-Only	The Functioning of the Ear
I2	I2		Opt H HL-Only	Medical Imaging
I3	I3		Opt H HL-Only	Radiation in Medicine

TSOKOS	IB TOPIC	SL	HL	DESCRIPTION
J	J		Opt J	Particle Physics
J1	J1	SL Opt D-4	Opt J	Particles and Interactions
J2	J2		Opt J	Particle detectors and accelerators
J3	J3, J4	SL Opt D-5	Opt J	Quarks and Leptons
J4	J5		Opt J	Experimental Evidence for the Standard Model
J5	J6		Opt J	Cosmology and Strings