INDERKUM HIGH SCHOOL
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MYP Subject Group Overview: Physics CP

Follow links and see Devin's IB Unit Planner & IB Guide for more information.

Subject Area: Science **MYP Level: Year 5**

Date/ Month & Time Frame (hours)	Unit Name & Essential Question	Description of Content -a few sentences -describe summative assessment	Key Concept -pick just one -Science's main Key Concepts are: change, relationships, & systems	Related Concepts -pick two - you can write your own	Global Context -pick one -try to vary -include a sub-topic/exploration	Statement of Inquiry -combine your Key Concept, Related Concepts, and Global Context exploration to create a statement -a good statement should be confused for a different subject area	Objective / Objective Strands -each strand should be assessed twice per year on a summative assessment -listing the letter and roman numeral is fine (don't have to write it out)	ATL skill Indicator/ (ATL skill list) -pick only 2-3	Common Core Standards CCSS ELA/Literacy *History/Social Science, Science, and Technical Subjects use the Literacy Standards *Choose at least 3 Reading and Writing standards for Literacy CCSS Math NGSS CA History/Social Science
Aug to Sept 25 hours	Motion in 1 and 2 dimensions	Calculate horizontal and vertical displacements of projectiles rolled from horizontal surfaces and throw at angles of 30 and 45 degrees.	Systems	Interaction Movement	Scientific and technological innovation	Movement of objects follow predictable patterns and can be mathematically modeled.	Ai to Aiii	Communication skills ● Understand and use mathematical notation ● Preview and skim texts to build understanding ● Take effective notes in class Critical thinking skills ● practice observing carefully in order to recognize problems ● Interpret data	9-10.RST.2 9-10.RST.3 9-10.RST.10
Sept 6 hours	Frictional forces	Use knowledge of coefficients of friction and normal force to calculate forces required to propel objects across horizontal surfaces and their resulting accelerations.	Relations	Movement Interaction	Scientific and technological innovation	Movement of objects cannot occur unless all other forces acting on the object, such as friction, are first overcome.	Ci to Ciii	Collaboration skills ● Give and receive meaningful feedback Critical thinking skills ● Gather and organize relevant information to formulate an argument ● Interpret data	9-10.RST.2 9-10.RST.3
Sept to Oct 17 hours	Newtons laws	Explain Newton's 3 laws governing motion and use these laws to describe why objects move in particular situations.	Relations	Models Movement	Scientific and technological innovation	Newton's laws provide the foundation for explaining why objects move in the way they do.	Bi to Biv	Critical thinking skills ● Draw reasonable conclusions and generalizations ● Revise understanding based on new information and evidence Information literacy skills ● Access information to be informed and inform others	9-10.RST.5 9-10.RST.3 9-10.RST.10
Oct 12 hours	Impulse and Momentum	Describe how movement of an object is caused by a force being applied for a specific amount of time.	Change	Movement Transformation	Scientific and technological innovation	Objects move at varying speeds because of a force being applied for a specific amount of time.	Civ, Cv	Affective skills ● Mindfulness--practice focus and concentration ● Perseverance--demonstrate persistence and perseverance	9-10.RST.5 9-10.RST.3

								● Self-motivation--practice analysing and attributing causes for failure	
Nov 10 hours	Work and energy	Describe how work, which is force applied over a certain distance, causes objects to gain either potential or kinetic energy and use equations that prove their equivalence to determine speed or position of the object after work is done on it.	Systems	Interaction Movement	Scientific and technological innovation	Changes in energy of an object are only accomplished by the addition of work to the system.	Di to Div	Organization skills ● Create plans to prepare for summative assessments (examinations and performances) ● Keep and use a weekly planner for assignments Collaboration skills ● Listen actively to other perspectives and ideas	9-10.RST.2 9-10.RST.3
Dec 10 hours	Circular motion and gravity	Describe how circular motion is achieved by applying a force that is perpendicular to its direction of movement. This force is often caused by gravity in the case of objects moving around the Earth.	Relations	Movement Energy	Scientific and technological innovation	Objects move in circular paths with they have force applied to them in specific directions.	Ai to Aiii	Information literacy skills ● Collect, record and verify data ● Evaluate and select information sources and digital tools based on their appropriateness to specific tasks	9-10.RST.2 9-10.RST.3 9-10.RST.10
Jan 10 hours	Thermodynamics	Describe how heat is used to produce work and motion in heat engine applications.	Systems	Energy Transformation	Scientific and technological innovation	Heat application often results in movement being created in systems such as automobile engines.	Ci to Ciii	Creative thinking skills ● Write for different purposes ● Understand and use mathematical notation ● Take effective notes in class	9-10.RST.2 9-10.RST.3
Jan-Feb 28 hours	Waves, sound, and light	Describe the nature of waves in general and sound in particular and the various ways they interfere with each other to produce patterns such as beats. Describe and provide example for properties of light such as refraction, reflection, diffraction and dispersion.	Relations	Energy Interaction	Scientific and technological innovation	Energy often moves in waves that transfer the energy from one place to another without the medium following the energy the entire distance. Describe properties of light	Civ and Cv	Communication skills • Understand and use mathematical notation Collaboration skills • Encourage others to contribute Organization skills • Plan short- and long-term assignments; meet deadlines	
Feb to Mar 20 hours	Electric forces and fields	Describe and calculate the electric force that exists between any two charged particles and how this force causes the particles to move relative to each other.	Change	Movement Energy	Scientific and technological innovation	Calculate electric forces and fields	Bi and Bii	Communication skills ● Use appropriate forms of writing for different purposes and audiences ● Read critically and for comprehension ● Organize and depict information logically	9-10.RST.2 9-10.RST.3 9-10.RST.10
Mar 20 hours	Voltage, current, and circuits	Describe how work is done by devices such as batteries to increase the potential energy of charged particles and cause them to flow through wires as electricity. Resolve simple	Systems	Models Transformation	Scientific and technological innovation	Solve simple circuit diagrams	Biii to Biv	Communication skills ● Understand and use mathematical notation ● Take effective notes in class Critical thinking skills	9-10.RST.2 9-10.RST.3

		circuits into simpler versions and calculate currents and voltages flowing in individual sections of the circuit.						● practice observing carefully in order to recognize problems ● Interpret data	
Apr to May 19 hours	Magnetism and electromagnetism	Describe how flowing electric charges can create magnetic fields and how magnetic fields may be used to create the flow of electricity.	Relations	Models Function	Scientific and technological innovation	Describe magnetic field properties.	Di to Div	Collaboration skills ● Exercise leadership and take on a variety of roles within groups Critical thinking skills ● Gather and organize relevant information to formulate an argument ● Interpret data ● Use models and simulations to explore complex systems and issues	9-10.RST.5 9-10.RST.3 9-10.RST.10