

## IB Physics YEAR 2 - Unit 3 (IA)

Teacher(s)	IB Physics PLC	Subject Group and Course	Group 4 - Physics		
Course Part and Topic	Internal Assessment	SL or HL / Year 1 or 2	SL Year 2	Dates	
Unit Description and Texts		DP Assessment(s) for Unit			
<ul style="list-style-type: none"> <li>During this unit students will plan and carry out their IA investigation alone.</li> <li>Students will be expected to design their own experiment that they have designed by themselves.</li> </ul>		<ul style="list-style-type: none"> <li>IA Proposal (Year 1)</li> <li>IA Checkpoints (Year 2)</li> <li>IA rough draft (Year 2)</li> <li>IA final draft (Year 2)</li> </ul>			

### ***INQUIRY: establishing the purpose of the unit***

Transfer Goals
<i>List here one to three big, overarching, long-term goals for this unit. Transfer goals are the major goals that ask students to “transfer” or apply their knowledge, skills, and concepts at the end of the unit under new/different circumstances, and on their own without scaffolding from the teacher.</i>
<p>Students may use the following content from the course:</p> <ul style="list-style-type: none"> <li>Topic 1 : Measurements and uncertainty</li> <li>Topic 2: Mechanics</li> <li>Topic 3: Thermal Physics</li> <li>Topic 4: Waves</li> </ul>

- Topic 5: Electricity and Magnetism
- Topic 6: Circular motion and Gravitation
- Topic 7: Atomic, Nuclear, and Particle Physics
- Topic 8: Energy Production

Students will develop the following skills:

- Effectively develop research questions
- Devising reliable and valid methodology
- Effectively incorporate required safety and ethical guideline into experimentation
- Construct testable hypotheses
- Organize and analyze data using prescribed statistical tests

***ACTION: teaching and learning through inquiry***

Content / Skills / Concepts - Essential Understandings	Learning Process
<p><u>Students will know the following content:</u></p> <ul style="list-style-type: none"> <li>• Topic 1 : Measurements and uncertainty</li> </ul>	<p><i>Check the boxes for any pedagogical approaches used during the unit. Aim for a variety of approaches to help facilitate learning.</i></p> <p>Learning experiences and strategies/planning for self-supporting learning:</p>

<ul style="list-style-type: none"> <li>• Topic 2: Mechanics</li> <li>• Topic 3: Thermal Physics</li> <li>• Topic 4: Waves</li> <li>• Topic 5: Electricity and Magnetism</li> <li>• Topic 6: Circular motion and Gravitation</li> <li>• Topic 7: Atomic, Nuclear, and Particle Physics</li> <li>• Topic 8: Energy Production</li> </ul> <p><u>Students will develop the following skills:</u></p> <p>Differentiation:</p> <ul style="list-style-type: none"> <li>• Affirm identity—build self-esteem</li> <li>• Value prior knowledge</li> <li>• Scaffold learning Extend learning</li> </ul> <p>Details: Growth will be monitored using formative assessments by instructor and self-assessed using provided bulls-eye rubric. Remediation/ extension will be conducted through homework activities and investigations conducted in class.</p>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Lecture</li> <li><input type="checkbox"/> Socratic seminar</li> <li><input checked="" type="checkbox"/> Small group/pair work</li> <li><input checked="" type="checkbox"/> PowerPoint lecture/notes</li> <li><input checked="" type="checkbox"/> Individual presentations</li> <li><input type="checkbox"/> Group presentations</li> <li><input type="checkbox"/> Student lecture/leading</li> <li><input type="checkbox"/> Interdisciplinary learning</li> </ul> <p>Details:</p> <p><i>Students will learn through a combination of presentations, small group work, practice problems, and lab work.</i></p> <li><input checked="" type="checkbox"/> Other(s): <i>practice problems, lab work</i></li> <p><b>Formative assessment(s):</b></p> <p><i>Paper 1 quizzes at the end of each subtopic</i></p>
	<p><b>Summative assessments:</b></p> <p><i>Topic test consisting of questions from P1 and P2</i></p>

	<p><i>Full lab report</i></p> <p><b>Differentiation:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Affirm identity - build self-esteem</li> <li>✓ Value prior knowledge</li> <li>✓ Scaffold learning</li> <li>✓ Extend learning</li> </ul> <p><b>Details:</b></p> <ul style="list-style-type: none"> <li>• <i>SWD/504 – Accommodations Provided</i></li> <li>• <i>ELL – Reading &amp; Vocabulary Support</i></li> <li>• <i>Intervention Support</i></li> <li>• <i>Extensions – Enrichment Tasks and Project</i></li> </ul>
<p><b>Approaches to Learning (ATL)</b></p> <p><i>Check the boxes for any explicit approaches to learning connections made during the unit. For more information on ATL, please see <a href="#">the guide</a>.</i></p>	
<ul style="list-style-type: none"> <li>✓ Thinking</li> <li><input type="checkbox"/> Social</li> <li>✓ Communication</li> <li>✓ Self-management</li> <li><input type="checkbox"/> Research</li> </ul> <p><b>Details:</b></p> <p><i>Students will be continuously challenged to develop higher-order thinking skills as they take prior knowledge, combine it with new content, and analyze the data they collected to reach a conclusion.</i></p> <p><i>Students will begin to prepare for the IA and group 4 project.</i></p> <p><i>Students will communicate their findings to their peers in the form of small-group presentations.</i></p>	

<b>Language and Learning</b>  <i>Check the boxes for any explicit language and learning connections made during the unit. For more information on the IB's approach to language and learning, please see <a href="#">the guide</a>.</i>	<b>TOK Connections</b>  <i>Check the boxes for any explicit TOK connections made during the unit</i>	<b>CAS Connections</b>  <i>Check the boxes for any explicit CAS connections. If you check any of the boxes, provide a brief note in the “details” section explaining how students engaged in CAS for this unit.</i>
<div data-bbox="247 527 722 703"> <input type="checkbox"/> Activating background knowledge  <input checked="" type="checkbox"/> Scaffolding for new learning  <input checked="" type="checkbox"/> Acquisition of new learning through practice  <input checked="" type="checkbox"/> Demonstrating proficiency </div> <p>Details:</p> <p><i>Concepts throughout topic 3 build into understanding final concepts and labs.</i></p> <p><i>Students will complete practice problems</i></p> <p><i>Students will produce a full scatter plot with high and low gradients as demonstration of learning.</i></p>	<div data-bbox="852 527 1276 665"> <input type="checkbox"/> Personal and shared knowledge  <input checked="" type="checkbox"/> Ways of knowing  <input type="checkbox"/> Areas of knowledge  <input type="checkbox"/> The knowledge framework </div> <p>Details:</p> <p>When does modeling of “ideal” situations become “good enough” to count as knowledge?</p>	<div data-bbox="1430 527 1591 630"> <input type="checkbox"/> Creativity  <input checked="" type="checkbox"/> Activity  <input type="checkbox"/> Service </div> <p>Details:</p> <p><i>Students will actively be carrying out experiments involving specific heat capacity.</i></p>
<b>Resources</b>  <i>List and attach (if applicable) any resources used in this unit</i>		
<ul style="list-style-type: none"> <li>• Textbooks (see page 1)</li> <li>• Online notes and videos (Schoology)</li> <li>• Simulations and animations online (TBD)</li> </ul>		

***REFLECTION: considering the planning, process, and impact of the inquiry***

<b>What worked well</b> <i>List the portions of the unit (content, assessment, planning) that were successful</i>	<b>What didn't work well</b> <i>List the portions of the unit (content, assessment, planning) that were not as successful as hoped</i>	<b>Notes / Changes / Suggestions</b> <i>List any notes, suggestions, or considerations for the future teaching of this unit</i>