MCS IB Physics Y2 Subject Group Overview

Unit Name	Measurement and Uncertainty	Wrapping up Wave Behavior	Internal assessment	Fields	Nuclear and Quantum Physics	Exams and Review
Time Frame	2 weeks	4 Weeks	3 weeks	11 weeks	13 weeks	3 weeks
Standards/ IB Topics	1.1, 1.2, 1.3	C.1, C.2, C.3, C.4, C.5	IA	D.1, D.2, D.3	E.1, E.2, E.3, E.4, E.5	All topics
Content Specific Information (texts, documents, methods)	**Statement of Inquiry** Measurement is a process of detecting an unknown physical quantity by using a standard quantity. **Phenomenon:** A plane can "fly blind" and arrive safely at the correct location simply by using vector coordinates. **Crosscutting Concepts** ● Scale, Proportion, and Quantity ● Systems and System Models **CORE IDEAS** ● Units and the metric system ● Precise measurements ● Errors and Uncertainties ● Vectors vs scalars ● Combining vectors	**Statement of Inquiry** The motion and interactions of waves can be predicted through analysis of the distinct features of each wave. **Phenomenon:** Waves might seem like they are moving matter but in reality, they are only moving energy. **Crosscutting Concepts** ● Systems ● Energy and Matter **CORE IDEAS** ● Simple Harmonic Motion ● Oscillation ● Pendulums ● Wave Model ● Wavelength ● Frequency ● Period ● Wave speed ● Wavefronts and Rays ● Snell's Law ● Superposition	**Scientific Investigation** The IA, worth 20% of the final assessment, consists of one scientific investigation. This individual investigation will cover a topic that is commensurate with the level of the course of study. Assessed by the teacher, and externally moderated by the IB. **IA Component** Duration: 10 hours Weighting: 20% Individual investigation.	**Statement of Inquiry** All types of fields are interacting with and affecting objects in your daily life without coming in contact with said objects. **Phenomenon:** The planets in our solar system stay in their orbits without being physically restrained **Crosscutting Concepts** ● Cause and Effect ● Systems and System models ● Energy and Matter ● Scale, proportion, and quantity **CORE IDEAS** ● Charges and electric fields ● Gravity ● Circuits ● Electrical forces ● Magnetic fields and forces	**Statement of Inquiry** The energy of a photon is dependent on its frequency. **Phenomenon**: Matter is made up of many fundamental particles. **Crosscutting Concepts** ● Energy and Matter ●Systems and System models ● Scale, Proportion, and Quantity **CORE IDEAS** ● Energy levels ● Radioactive decay ● Isotopes ● Mass defect and binding energy ● Nuclear fission and fusion ● Quarks, lepton, and their antiparticles ● Conservation laws ● Exchange particles	**Review all previous topics** **Topics summative assessments** **Practice IB exams**

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		● Interference ● Young's Double Slit ● Standing waves ● Resonance ● Damping ● Doppler Effect			● Feynman diagrams ●Sankey Diagrams ● Black body radiation ● Albedo and emissivity ● The solar constant and greenhouse effect ● Forms of renewable energy and resources	
Common Assessments/ Major Projects	Internal Assessment Preparation Practice IB Exams Common Formative quizzes at the end of each sub unit Common Summative IB practice assessments at the end of each unit **SEP** Asking Questions and Defining Problems Developing & Using Models Planning and Carrying out investigations Analyzing & interpreting data Constructing Explanations	Internal Assessment Preparation Practice IB Exams Common Formative quizzes at the end of each sub unit Common Summative IB practice assessments at the end of each unit **SEP** Asking Questions and Defining Problems Developing & Using Models Carry out Investigations Analyzing & interpreting data Use mathematics and computational thinking	**IA Criteria** Personal engagement:8% Exploration: 25% Analysis: 25% Evaluation: 25% Communication: 17% Internal Assessment final report	Practice IB Exams Common Formative quizzes at the end of each sub unit Common Summative IB practice assessments at the end of each unit **SEP** Asking Questions and Defining Problems Developing & Using Models Carry out Investigations Analyzing & interpreting data Use mathematics and computational thinking Engage in Argument from	Practice IB Exams Common Formative quizzes at the end of each sub unit Common Summative IB practice assessments at the end of each unit **SEP** Asking Questions and Defining Problems Developing & Using Models Carry out Investigations Analyzing & interpreting data Use mathematics and computational thinking Engage in Argument from Evidence	IA and IB Exam

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	Use mathematics and computational thinking Obtaining, evaluating and communicating information	Engage in Argument from Evidence Obtaining, evaluating and communicating		Evidence Obtaining, evaluating and communicating information	Obtaining, evaluating and communicating information	
Level Specific Differentiation	Marietta City Schools teachers provide specific differentiation of learning experiences for all students. Details for differentiation for learning experiences are included on the district unit planners.					
Resources	● Schoology Course Page ● IB Physics Guide First Assessment 2025 ● Textbook TBD - evaluation of resources ● Van de Lagemaat, R. www.inthinking.net: Andorra la Vella, Andorra, 2019 ● Discovery Education Physics Resources Additional resources from old syllabus ● Hodder Study and Revision Guide for the IB Diploma ● Hodder IA Internal Assessment for Physics		● Schoology Course Page ● IB Physics Guide First Assessment 2025 ● Textbook TBD - evaluation of resources ● Van de Lagemaat, R. www.inthinking.net: Andorra la Vella, Andorra, 2019 ● Discovery Education Physics Resources Additional resources from old syllabus ● Hodder Study and Revision Guide for the IB Diploma ● Hodder IA Internal Assessment for Physics	● Schoology Course Page ● IB Physics Guide First Assessment 2025 ● Textbook TBD - evaluation of resources ● Van de Lagemaat, R. www.inthinking.net: Andorra la Vella, Andorra, 2019 ● Discovery Education Physics Resources Additional resources from old syllabus ● Hodder Study and Revision Guide for the IB Diploma ● Hodder IA Internal Assessment for Physics	● Schoology Course Page ● IB Physics Guide First Assessment 2025 ● Textbook TBD - evaluation of resources ● Van de Lagemaat, R. www.inthinking.net: Andorra la Vella, Andorra, 2019 ● Discovery Education Physics Resources Additional resources from old syllabus ● Hodder Study and Revision Guide for the IB Diploma ● Hodder IA Internal Assessment for Physics	● Schoology Course Page ● IB Physics Guide First Assessment 2025 ● Textbook TBD - evaluation of resources ● Van de Lagemaat, R. www.inthinking.net: Andorra la Vella, Andorra, 2019 ● Discovery Education Physics Resources Additional resources from old syllabus ● Hodder Study and Revision Guide for the IB Diploma ● Hodder IA Internal Assessment for Physics

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