

IBDP Physics SL/HL Year 1

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Should you wish to learn more about our course or to discuss your learner's progress, please reach out to the email above to schedule a time to meet.

Course Description and Units of Learning:

Physics is the most fundamental of the experimental sciences, as it seeks to explain the universe itself from the very smallest particles to the vast distances between galaxies.

Despite the exciting and extraordinary development of ideas throughout the history of physics, observations remain essential to the very core of the subject. Models are developed to try to understand observations, and these themselves can become theories that attempt to explain the observations.

Through studying a science subject student should become aware of how scientists work and communicate with each other. While the scientific method may take on a wide variety of forms, the emphasis is on a practical approach. In addition, through the overarching theme of the "Nature of Science" this knowledge and skills will be put into the context of the way science and scientists work in the 21st century and the ethical debates and limitations of creative scientific endeavor.

The sciences are taught practically. Students have opportunities to design investigations, collect data, develop manipulative skills, analyze results, collaborate with peers and evaluate and communicate their findings. The investigations may be laboratory based or they may make use of simulations and data bases. Students develop the skills to work independently on their own design, but also collegiately, including collaboration with schools in different regions, to mirror the way in which scientific research is conducted in the wider community.

For a more detailed exploration of this course, [the IB Subject Guide is available at this link for Standard Level](#) and [at this link for Higher Level](#).

Measurement and Uncertainty (SL/HL)

Measurements in Physics; Uncertainties and Errors; Vectors and Scalars

Mechanics (SL/HL)

Motion; Forces; Work, Energy and Power; Momentum and Impulse

Circular Motion and Gravitation (SL/HL)

Circular Motion; Newton's Law of Gravitation

Thermal Physics (SL/HL)

Energy Production (SL/HL)

Oscillations; Traveling Waves; Wave Characteristics; Wave Behavior; Standing Waves

Wave Phenomena (HL)

Simple Harmonic Motion; Single-Slit Diffraction; Interference; Resolution; Doppler Effect

Internal Investigation (SL/HL)

An individually conducted Physics investigation

This year we have begun planning and implementing units of study based on our Critical Learning Outcomes within the IB MYP and DP frameworks. Please see ManageBac for unit overviews as they are taught throughout the year.

Assessment in the Diploma Programme

Assessment is a key component of the learning process as it allows teachers to respond with targeted feedback to learners for continued growth and to revise their instruction to better meet the needs of their learners. In order to provide learners with the opportunity to reach critical learning outcomes and develop a range of approaches to learning skills, our IB Diploma teachers develop rigorous tasks that embrace a variety of strategies in line with desired learning outcomes and with each course's internal and external assessments.

Working backwards from these assessment components, teachers craft learning experiences which support each learner's mastery of key content, concepts, and skills in every subject. Learners can expect to receive regular feedback on all three elements, with important culminating experiences such as IA drafts and mock examinations in the second year. For culminating tasks, teachers and learners are guided by criteria provided at least one week prior to the due date. DP teachers also work to ensure that learners not only understand but engage in applying evaluation criteria to their own work as well as that of their peers. Core components such as Theory of Knowledge, CAS, and the Extended Essay support each learner's progress across the programme, as learners apply critical thinking, the design cycle, and research skills to each subject.

Families and learners at AISM can expect to receive regular reporting of their performance as they work towards mastery of critical learning outcomes.

Learning Management Systems

Across the Secondary School, we utilize ManageBac for sharing key activities and assessments, as a digital workspace, for communication with learners, and for reporting on learner performance to families. Some teachers may supplement the digital learning environment with Google Classroom, and you can expect an emailed invitation to sign up for regular updates from Google Classroom if so.

Homework

Any learning activity which is expected to take place outside of the classroom will appear as assignments and tasks on ManageBac. Homework is most often an extension of activities or projects either begun or included in the classroom, but may include common activities like reading, reinforcement of content or skills within a unit of study, or distributed practice activities, such as flashcards for example, to support learner recall of low-level content.

Reporting

As a rough guide, learners and families can expect an update on performance every few weeks. These updates, available in ManageBac, represent a check-in on learner

performance toward mastering critical course objectives and learning outcomes, prior to each unit's culminating assessment.