AP/IB Sciences In MCPS

IB PHYSICS

May 8th
Wootton High School

Matt Reese

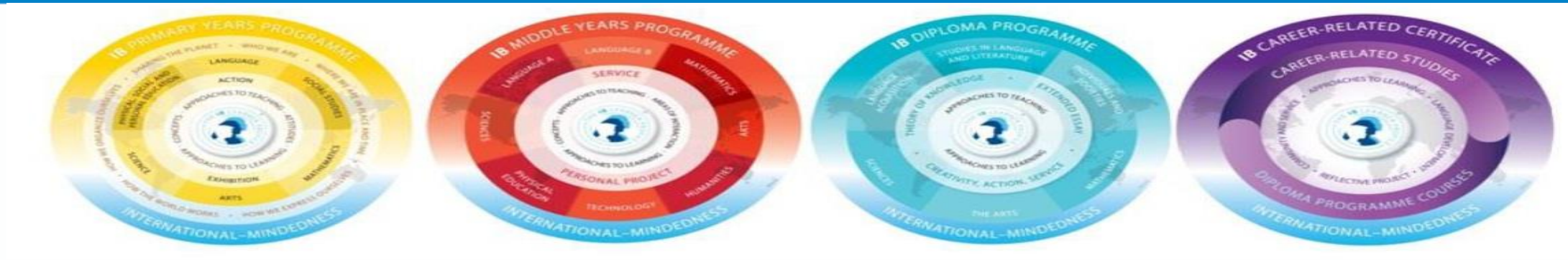
- 11 years experience teaching IB Physics Higher Level at Watkins Mill High School
- Member of the international team for the next round of IB Physics Curriculum (was not on this team for the current curriculum)
- I grade IB Physics Internal Assessments and exams for IB.

Let's do some Physics!

Lenz’s Law

Learning Engagements:

- Overview of IB Program
- Standard Level vs. Higher Level
- Overview of IB Physics
- Examine the pacing of the content in the course
- Internal Assessments (IA)
- External Assessments



Diploma Program (DP)
Grade 11-12

The program aims to develop students who have excellent breadth and depth of knowledge.

DP students are required to take 6 IB courses as well as complete an Extended Essay and Theory of Knowledge.

At least 3 of those courses must be Higher Level (HL)

Career-Related Program
11-12 Grade

- The CP is a framework of international education addressing the needs of students engaged in career-related education, or want to specialize in one aspect of the DP program.
- Student must take at least 2 DP courses
- Designed for students who want to be in one of the counties other programs (Project lead the way, Medical Careers, etc).

Standard Level (SL) vs. Higher Level (HL)

- SL courses ensure students are exposed to a range of disciplines that they might otherwise opt out of.

- HL courses allow students to spend more time with subjects they are more interested in by exploring options in addition to the SL core curriculum.

Standard Level vs. Higher Level

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- SL courses are not watered down versions of their HL counterparts.

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- SL courses are not watered down versions of their HL counterparts.
- The assessment criteria are equally demanding for both levels, and SL exams are marked and standardized with the same rigour as all IB coursework.

Overview of IB Physics

- 2 year course
- 8 Core Topics (SL & HL)
- 4 Additional Topics in HL
- One “Option” Topic

- Internal Assessment (Lab Report)
- External Assessment (IB Exam)

8 Core Topics - SL & HL

1: Measurements and Uncertainties
2: Mechanics (1st year college Physics)

8 Core Topics - SL & HL

3: Thermal Physics (2nd year)

4: Waves (2nd or 3rd depending on the program)

8 Core Topics - SL & HL

5: Electricity and Magnetism (2nd year)

6: Circular motion and gravitation (1st year)

8 Core Topics - SL & HL

7: Atomic, nuclear and particle physics (mix of 2nd, 3rd or more advanced modern Physics course)

8: Energy Production (connects the core material to how power is generated, mixed in to other material in college)

Additional HL Material

9: Wave Phenomena (focus on light and modern physics, 3rd year college physics)

10: Gravitational, Magnetic, and Electromagnetic Fields (Mix between 1st & 2nd year college Physics)

Additional HL Material

11: Electromagnetic induction - How an electric generator works (2nd year and above college Physics)

12:Quantum and Nuclear Physics (modern Physics course)

Options SL & HL

A: Relativity - Popular option because it is engaging material.

B: Engineering Physics - alligns course with AP Physics C.

C. Imaging (Optics) - Fully aligns IB with SAT 2

D. Astrophysics - Another popular option because students find it interesting.

Pacing

- 2 year course (4 semesters)

Semester 1: Mechanics, Circular Motion, Gravity - aligns with typical 1st year college course.

Pacing

- 2 year course (4 semesters)

Semester 2: Thermal Physics, Electricity and Magnetism, Waves, Energy Production - aligns with typical 2nd year college course

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- 2 year course (4 semesters)

Semester 2: Thermal Physics, Electricity and Magnetism, Waves, Energy Production - aligns with typical 2nd year college course

First year of the course is aligned with typical advanced high school Physics courses & the SAT II.

Examine the pacing of the content in the course

Semester 3: Advanced Electricity and magnetism (topic 11), Atomic & Nuclear Physics

Semester 4: Quantum Physics, Option A Relativity, Exam Review

Internal Assessments (IA)

- Students will individually conduct an investigation about a Physics phenomena and write a detailed lab report.
- Worth 20% of the overall IB Physics assessment grade.

Sample IA

Internal Assessments (IA)

- During year one schools complete practice reports during so students learn how to write a report.
- At the end of year 1 or start of year 2 students begin their individual report

External Assessments

Three Part Exam

Part I - Multiple Choice (1 hour)

Part II - Written response (2:15)

Part III - Data Analysis Questions and Option (1:15)

Questions?

Index Card:

please include your contact info

Online form:

Type the link in your browser or scan the QR code

For more information on enrolling your student in this course, please contact the Counselor and/or the Science Department Resource Teacher at your high school.

bit.ly/SciNight19