

Curriculum and Instruction Committee
December 20, 2017

Attendance:

Tracy Baron	BOE Member
Shannon Johnson	BOE Member
Lisa Brady	Superintendent
Doug Berry	Asst. Superintendent
John Falino	High School Principal
Candace Reim	High School Assistant Principal
Patrick Mussolini	Middle School Principal
Julia Drake	Springhurst Principal

3-8 NYS Assessment Data

NYS Testing Program (Performance in 2017 is consistent with past performance)

2017 Proficiency Results (Levels 3 & 4)

ELA Gr. 3-5 Percent Proficient: 60% (Was 52.5% last year)
ELA Gr. 6-8 Percent Proficient: 61% (Was 60% last year)
Math Gr. 3-5 Percent Proficient: 64% (Was 64.5% last year)
Math Gr. 6-8 Percent Proficient: 60% (Was 56% last year)
Science Gr. 4 Percent Proficient: 97% (Was 99% last year)
Science Gr. 8 Percent Proficient: 57% (Was 62% last year)

Reviewed Three Year Comparison Grades 3-8

Highlights:

ELA Springhurst:

- Improvement of 3rd grade's grade-level performance ('16: 50%, '17: 65%)
- Strong cohort proficiency increase from 3rd to 4th grade:
 - '15 3rd 54% (46 Ss) → '16 4th gr 61% (53 Ss)
 - '16 3rd 50% (63 Ss) → '17 4th gr 56% (73 Ss)

ELA Middle School:

- Current 9th grade cohort showed 3 year increase in proficiency from 53% to 59% to 72%
- Last year's 7th grade - when they were 6th graders we were concerned (39% proficiency). We've now increased that grade's proficiency to 63%.

MATH Springhurst:

- Very strong cohort proficiency increase from 3rd to 4th grade:
 - '15 3rd 51% (43 Ss) → '16 4th 81% (72 Ss)
 - '16 3rd 47% (56 Ss) → '17 4th 62% (79 Ss)

MATH Middle School:

- Very strong cohort proficiency increase from 6th to 7th grade:
 - 6th 52% → 7th gr. 66%
- High mastery rate on Algebra I

Take Aways:

Opt-outs continue to concern us re: the efficacy of the NYS results & longitudinal data

Continue conversations re: the transition from Springhurst to Middle School

SWD and Econ Disadv. performance/progress remains relatively consistent with prior years

ELA Springhurst:

- Reading Academy helping send Ss to 3rd gr closer to reading on grade level

ELA Middle School:

- Some of the benefits that we are observing in grades 7 and 8 are starting to show themselves in gr. 6 (ex. More 1:1 time, improvement of co-teaching, small group instruction around leveled text)

MATH Springhurst:

- Roughly 10 students per grade level were just on the cusp (actionable)
- Large proportion of L1 students in gr. 3 were SWD and Econ Disadv. (case for Math Academy)

MATH Middle School:

- Majority of students that scored at a level 3 or 4 in 7th grade math did not take the 8th grade exam
- Trend re: 6th gr. performance dip - Gr. 5 62%, 6th 52%, 7th gr. 66%
- Math 8 results continue to be impacted by Algebra I students not taking the Math 8 exam

Action Steps

Springhurst:

- Data Talks & Responsive Planning (whole faculty, grade-level & teacher-partnerships)
- New AIS Program Leveled Literacy Intervention (LLI) this school year
- Additional AIS support position this school year
- Continuation of Reading Academy after school (Gr. 1-3)
- Launch of Math Academy after school (Gr. 1-3) - End of February start! (more details at Jan. meeting)

Middle School:

- Data Discussions (Principal & teachers)
- ELA 6 - Created smaller class sizes in Language & Literature
- Continuation of Math and ELA Academies after school (Gr. 6-8)
- Inter-school Visitation
- Moving from “tweaking” to “overhaul” (Looking at everything from the ground-up: ex. Performance based tasks, MYP alignment, considering stripping down the Math 8 curriculum & rewriting it)
- In process: Exploring alternative Lang and Lit AIS programs

Middle School Regents Results

MIDDLE SCHOOL REGENTS RESULTS SUMMARY - JUNE, 2017				
Regents	Number Tested	% 65-100	%75-100	% 85-100
ALGEBRA 1 (MS)				
2016-17	42	100.0%	100.0%	83.0%
F&R 2016-17	3	100.0%	100.0%	100.0%
CSE 2016-17	0	0.0%	0.0%	0.0%
EARTH SCIENCE (MS)				
2016-17	57	96.0%	96.0%	72.0%
F&R 2016-17	4	100.0%	100.0%	75.0%
CSE 2016-17	0	0.0%	0.0%	0.0%

DFHS Science Progression (Notes and Highlights)

Highlights of the New Science Progression

- Physics for all in grade 10
- Allows ALL students to take the three major sciences: Biology, Physics, Chemistry
- Aligns perfectly to Math Progression (changed four years ago)
- Reintroduces IB Chemistry SL (Junior Year)
- Provides infrastructure to IB Chemistry HL
- Provides infrastructure for "IB for All" in science via IB Nature of Science
- Defers Earth Science Regents course to senior year for Science 8 students

For Special Education and Regents Level Students

- **Physics over Earth Science prior to Grade 11**

In looking at the shifts in the NGSS (Next Generation Science Standards) for grades 9 and 10 students a course in biology and a course in physics better align to the new standards and allow a fundamental preparation for future study of science

A study of basic physics informs the study of chemistry. For example, when students study the laws of motion on a macro level in a physics course prior to taking chemistry, they are better able to understand and apply these concepts in a chemistry class when they have to apply these concepts to an atomic level.

- **Living Environment for all in grade 9**

Living Environment Regents for all in grade 9 allows them to access a regents exam and regents curriculum that is very accessible to all students. This curriculum is also different than the curriculum they the students experience in grade 8. Currently we have co taught sections in Living Environment which allows for continuity in support in the sciences.

Living Environment allows for all students to access the 3 major disciplines in science prior to senior year.

- ***"The majority of high schools in the U.S. follow a course sequence that allows students to take Biology, Chemistry, and Physics by the end of junior year."*** (From the College Board)

Note: Under the current progression, only students who have been accelerated enjoy the benefits of this option. As a result, all of our students in 9th grade Earth Science do not get any physics on their transcript. If they do choose physics as a senior, they cannot take any IB course in science, including the new IB Nature of Science course that we plan to offer. Either way, they are at a disadvantage.

- ***"It looks better on a student's transcript if they take physics"*** (From the College Board)

Note: The new progression will give all students physics in sophomore year (Regents or Non-Regents) with the option to take an IB DP course in either grade 11 or 12 (or both). Students on the Earth Science pathway never had the option to take two IB courses in the past since they first needed Chemistry in grade 11. At the very least, all students will take IB Nature of Science SL in grade 12.

- **Special Education:** A non-Regents science for special education students in grade 10 is ideal. The sophomore schedule is already packed due to the required IB Personal Project and Health courses. This science will be one less period every other day, making it easier for special education students to take content labs and other support classes that they need.
- **Special Education--Inclusion:** The new progression will increase the number of sections of non-Regents chemistry and physics. Currently, those two classes are similar to “self contained” science classes. In addition, IB Chemistry SL will have higher performing students into IB English SL classes.
- **Math & Science Alignment:** LE and Physics for all in grades 9 and 10 will allow for easier curricular alignment between math and science with respect to the various pathways as they connect to the IB DP. The following is an example:
 - Grade 9: Biology Regents w/ Algebra 1
 - Grade 10: Conceptual or Regents Physics w/ MYP Math Studies or Geometry 10
 - Grade 11: Chemistry Regents w/ Algebra 2 or IB Math Studies or SL
 - Grade 12: IB Nature of Science w/ IB Math Studies or SL
- **Senior Year:** This new progression offers the following two potential opportunities for students:
 - **Earth Science Regents:** Under this model, Earth Science Regents is not necessarily eliminated. Rather, it is deferred to senior year. Given that, all of the students who are currently in Science 8 will have the option to take Earth Science Regents during their senior year.
 - **IB Nature of Science SL:** Under this model, we are situated to provide “IB for All” in science for the first time. The IB Nature of Science SL course is currently in pilot phase. It is a lab science (.3 teacher load) that is based primarily in Earth Science along with other aspects of science (medicine, astronomy, biotechnology, evolution). It would be coded as an Earth Science course.
 - We can pilot at DFHS in 2018-19, 2019-20 (next year's grades 11-12)
 - Becomes an IB course in 2020-21 (next year's grade 10)
 - Offered as an IB SL (2021-22) (next year's grade 9)

For Honors and Full IB DP Students:

- The new progression further differentiates the IB full diploma pathway for students.

Note: The goal of any IB School is to provide students with as many pathways to an IB full Diploma as possible. For a full diploma, students must take a minimum of three HL courses and a maximum of four similar to choosing a “major” in college. In 2011, there was only one pathway to a full IB Diploma. Today, there are several. This new progression will provide “science and math” students with an additional pathway through the potential offering of IB Chemistry HL.

- **Clear Math/Science Alignment:**
 - Grade 9: Biology Honors w/ Geometry Accelerated or Honors
 - Grade 10: Physics Regents or Honors w/ Algebra 2 NR, R, or Honors
 - Grade 11: Regents or IB Chemistry w/ IB Math SL or HL
 - Grade 12: IB Biology or IB Nature w/ IB Math SL or HL

- **IB Chemistry SL**

Note: Chemistry is the foundation of all sciences that connect to any medically related field and is a big gap in the previous DFHS science progression. On average, there are far more students who would benefit from IB Chemistry as compared to IB Physics and the new math progression will ensure that students are better prepared. We attempted IB Chemistry approximately nine years ago and the course did not work because of the “old” progressions in both math and science.

- **Elimination of IB Physics SL (starting in 2019-20)**

Note: We have received concerns over the past seven years with issues in IB Physics, including:

- There is too much to cover in the course in one year. This has resulted in students losing lunch periods and being over stressed with homework and “flipped” lessons.
- Capacity: With only one certified physics teacher, we have limited potential to offer IB Physics SL and HL in the way that we could in IB Chemistry.
- Students who are interested in engineering can enroll in honors physics in grade 10 and have ongoing access to Ms. Curran in science research during grades 10-12,

- **Possibility of an HL Chemistry (Long Term)**

Note: Given the capacity noted above, this new progression gives us the opportunity to offer an HL science. This would be the first time that DFHS breaks into the HL realm in science and has long been asked for by the community. A few points about Chemistry HL:

- This would be a singleton that runs over two years.
- There would also be 1-2 sections of IB Chemistry SL (one year). This is ideal for students who want two IB SL sciences (Chemistry and Biology) as opposed to one (HL).
- IB Chemistry HL would be ideal for students taking IB Math HL.
- It creates a true “Science/Math” pathway for an IB Diploma:
 - IB Chemistry HL
 - IB Math HL
 - IB History HL
 - IB Group 6 HL
 - IB English SL
 - IB Language B SL
- This new full DP pathway would increase the academic level of the students who are taking **IB English SL**. This is further in-line with our IB for All philosophy.

Careers in Science (Question around “Students Who Want to be Engineers”)

Understanding that there is a “trade-off” with any decision given the small nature of our school, the question needs to center on what will be best for “most,” how will the “few” still be served, and what are we gaining with a new decision. The following gets to how the loss of IB Physics will be handled:

- MIT admission requirements include the following:
 - *A strong academic foundation in high school both improves your odds of getting into MIT and will help you make the most of the Institute when you're here. We recommend (please note that these are not "requirements") that your high school years include the following:*

One year of high school physics
One year of high school chemistry
One year of high school biology
Math, through calculus
Two years of a foreign language
Four years of English
Two years of history and/or social sciences

Overall, you should try to take the most stimulating courses available to you.

- For students who are interested in pursuing a career in medicine or a biology/chemistry related field, high school science courses, specifically advanced biology and chemistry provide the best preparation for the field. For students who are interested in pursuing a career in engineering, calculus plus an experience in the different disciplines in science is the recommended path. For all science majors, the colleges and universities will require the students to take the introductory science courses in all the major disciplines as part of their program. Additionally, an experience in computer science enriches the preparation program for a prospective engineering student.
- <http://tryengineering.org/explore-engineering/become-engineer>