



SPRING-FORD AREA SCHOOL DISTRICT

CURRICULUM & TECHNOLOGY MEETING

Curriculum & Technology Meeting Minutes

Tuesday, October 6, 2015 6:30 in D.O. Conference Room

Attendees: Dawn Heine (chair), Will Cromley; Kelly Spletzer; Tom DiBello; Dr. Goodin; Dr. Floyd; Mrs. Bast; Mrs. Gardy; Sue Choi; Pete Grande; Bob Cywinski; Christina Melton; Mrs. Long; Bernadette Novi

CHANGE of DATE for November Curriculum & Technology Board Subcommittee meeting: **From Tuesday, Nov. 3** (Election day) to **Wednesday, Nov. 4.**

Curriculum:

I. New High School Courses – Proposed for 2016-17: All are on the agenda this evening.

- A. **Digital Electronics**; PLTW Course 3; Rationale: This is the third of four courses to be offered as a part of our PLTW program at the HS.
- B. **AP Macroeconomics**; Rationale: To continue to add to our AP program and as a complement to our Global Studies program.
- C. **AP Art History**; Rationale: To continue to add to our AP program and offer additional choices for students.

II. AP Program (see handout) Follow up from September C&T meeting:

Growing our AP Program has been a goal for a number of years. We've seen an increase in the number of students enrolling in the courses and participating in end of course AP Exams. There are currently 38 Advanced Placement courses associated with College Board. Spring-Ford Area School District offers 21 "in-house" with additional offerings available through the Virtual High School. We will add two courses to the list in 2016-2017, if approved: AP Art History and AP Macroeconomics. It is highly likely that we could find a way to offer a student any AP class they desire, through virtual options available to us. Students may also participate in the test without having taken the course.

III. STEAM update (see handout) Follow up from September C&T meeting.

We discussed the focus of the program at SFASD including work done and work to be completed. Discussion ensued and a specific action plan will be presented. Additional events this year:

- A. **Hour of Code**- We will engage in Hour of Code district wide in December 2015
- B. **STEM Fair** – We are planning for a comprehensive STEM Fair at the HS in February 2016, during Engineer's Week.
- C. **PLTW Advisory Board**- first meeting of the year will be held on October 19.

IV. Spring-Ford Core Curriculum Night-

We will be holding an informational meeting on November 5, 2015 for all Spring-Ford parents. The focus of the night is to share the history of the change-over to PA Core, to discuss what the district has done to support students and what parents and students can do.

V. K-6 ELA Curriculum Review update-

Mrs. Catie Gardy presented the plan for 15-16 including site visits, vendor presentations, meetings, curriculum review, etc. We will have a program for approval in November or December with full implementation in the 16-17 school year.

Curriculum & Technology:

I. Hybrid update-

Dr. Goodin provided an update and indicated that we are progressing according to the timeline and all facets should be in place for implementation during the second quarter at Royersford Elementary School.

II. Modernized learning update

Dr. Goodin and Dr. Grande provided updates on the program. We are progressing according to the timeline with both technology and professional learning. We will have 11 teachers involved this year and over 900 students. See handout.

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AP Courses

AP Capstone

- AP Research
- AP Seminar

Arts

- AP Art History
- AP Music Theory
- AP Studio Art: 2-D Design
- AP Studio Art: 3-D Design
- AP Studio Art: Drawing

English

- AP English Language and Composition
- AP English Literature and Composition

History & Social Science

- AP Comparative Government and Politics
- AP European History
- AP Human Geography
- AP Macroeconomics
- AP Microeconomics
- AP Psychology
- AP United States Government and Politics
- AP United States History
- AP World History

Math & Computer Science

- AP Calculus AB
- AP Calculus BC
- AP Computer Science A
- AP Computer Science Principles
- AP Statistics

Sciences

- AP Biology
- AP Chemistry
- AP Environmental Science
- AP Physics C: Electricity and Magnetism
- AP Physics C: Mechanics
- AP Physics 1: Algebra-Based
- AP Physics 2: Algebra-Based

World Languages & Cultures

- AP Chinese Language and Culture
- AP French Language and Culture
- AP German Language and Culture
- AP Italian Language and Culture
- AP Japanese Language and Culture
- AP Latin
- AP Spanish Language and Culture
- AP Spanish Literature and Culture

Spring-Ford Area School District AP Offerings:

1. Biology
2. Calc AB
3. Calc BC
4. Chemistry
5. Computer science
6. English Comp
7. English Lit
8. Environmental Science
9. European History
10. French
11. Human Geo
12. Music Theory
13. Physics C – Mechanics
14. Physics 1- Algebra Based
15. Psychology
16. Spanish
17. Statistics
18. Studio Art Drawing
19. Studio Art 2-D
20. Government and Politics: United States
21. US History

Additional offerings for 2016-2017 (pending approval)

22. AP Macroeconomics
23. AP Art History

Virtual AP Offerings open to all Spring-Ford Area School District Students:

1. AP Art History
2. AP Microeconomics
3. AP World History

It is highly likely that we could find a way to offer a student any AP class they desire, through virtual options available to us. Students may also participate in the test without having taken the course.

Should you have questions, please feel free to contact me:

kbast@spring-ford.net

610-705-6189 or 484-624-9230



STEAM Education at the Spring-Ford Area School District

What is STEAM Education?

Students and Teachers Energizing Minds. STEAM adds the “A”rts to the acronym. STEAM though, is a culture, not a class. STEAM is not a secret or a class for a select group, it’s for all students! Essentially, it is four “Cs” that students engage in and master:

- Collaboration
- Critical Thinking
- Communication
- Creativity

Specific skills are needed for students to be successful in STEAM Careers. How do we teach these skills? They are not taught, they are developed.

- Transdisciplinary approach

- Get them reading

- FAIL- First attempt in learning (should be embraced, even encouraged), and consider that students need to develop persistence so they don’t give up after the first fail

- Give students problems to solve

- Build collaboration into daily routines

- Encourage them to present

- Give them experiences; focus on the classroom infrastructure: it should allow for hands on activities, computers, reading writing stations- inquiry

STEAM LEARNING involves fostering a culture of creativity and inquiry that allows students to make real world connections by providing opportunities for application of concepts in authentic settings.

STEAM learners are encouraged to:

- Ask questions

- Draw reference from several different curriculum areas

- Collaborate with their peers

- Arrive at meaningful conclusions

- Explore STEM careers

Spring-Ford Area School District STEAM Education Goal:

To create a comprehensive K-12 STEAM program that prepares students for the demands of STEM careers, with the understanding that all subjects and disciplines play a role in preparing students to be critical, creative problem solvers.

The Program could include:

- **K-4 Inquiry Based** Science and Technology curriculum with emphasis on PA Core Math Practice standards.
- **5-8 Vertical progression of Math, Science, Technology content and skills** to support student growth and achievement, and to provide opportunities for students to participate in STEM clubs and/or contests.
- **9-12 Course offerings to support success in STEM careers**, students should also:
 - Explore STEM careers (with the help of our Future Planning Center), tour local universities with strong STEM programs, partner with and learn from local community members and businesses, providing real world application of knowledge and skills gained, participate in independent research projects, participate in STEM clubs and/or contests

STEM Education at the Spring-Ford Area School District

What we've accomplished:

- Reviewed and revised 5th-8th grade Science courses for greater alignment to standards AND to promote greater inquiry, more “doing” in Science classes ; new 8th grade “Challenge Science” course
- Completed revision of 7th and 8th grade Technology Education courses to encourage STEM learning and to prepare for HS courses.
- Adopted Project Lead the Way Engineering (PLTW) curriculum with two current course offerings
- Partnered with local industry to provide real-world experiences to our science students. These partnerships should grow with the PLTW Advisory Board being formed.
- STEM course offering information in the 2015-2016 Course Selection
- Established Robotics clubs and participated in competitions

Next Steps

- STEM Fair and Hour of code will take place K-12 in 2015-2016
- Continue to offer professional learning opportunities to teachers to encourage more “doing” of science, more inquiry-based activities and experiences at all grade levels. *Focus for 2015-2016 PD.*
- Create/expand information available to parents and students regarding STEM career opportunities. *Work with guidance and others – to be implemented as soon as possible (some information will be included in the 2015-2016 Course Selection Guide)*
- Expand the use of technology and access to technology in STEM identified courses (8-12). *Part of Modernized Learning project.*
- Critically analyze course offerings to see if there are gaps or courses we should be offering that we currently do not offer. *To be completed by July 1, 2015, will seek board approval for new courses identified.*
- Consider offering independent research projects to our students interested in STEM. *Parameters to be defined by July 1, 2015.*
- Expand career exploration opportunities for students to learn more about STEM careers. *Work with guidance department to utilize Naviance or other programs. To be implemented 2016-2017.*

What have we missed? What next steps would you like to see?

STEM EDUCATION

STEM FACTS & CAREER Information

Careers in STEM fall into many different categories: Computer Science, Mathematics, Engineering, Life Sciences, Chemistry, Geosciences, Physics/Astronomy, Environmental Science, Music and more. The Math and Science courses described on the previous page will help students gain a strong foundation, but choosing technology and engineering courses should depend on the area of interest a student has.

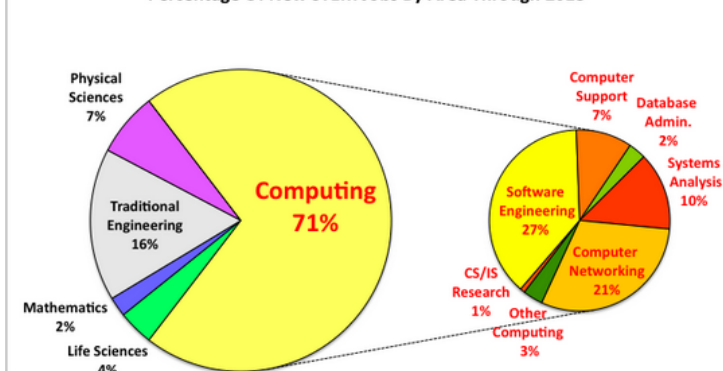
For more information, please visit one of these helpful sites:

<http://stemcareer.com/>
<https://bigfuture.collegeboard.org/majors-career>
<https://www.pltw.org/>
<http://www.pathwaystoscience.org/K12.aspx>

STEM Fast Facts

- Not enough students are graduating with STEM backgrounds to fill the open positions in the marketplace.
- By 2010, if current trends continue, more than 90 percent of all scientists and engineers in the world will be living in Asia.
- More than 50 percent of all engineering doctoral degrees awarded by United States engineering colleges are to foreign nationals.
- During the next decade, the United States demand for scientists and engineers is expected to increase at four times the rate for all other occupations.
- The United States ranks 20th among all nations in the proportion of 24-year-olds who earn degrees in natural science or engineering.
- The United States ranked 28th in math literacy and 24th in science literacy, according to a 2008 report by the Congressional Research Service.
- More than half of teens (55%) would be more interested in STEM simply by having teachers who enjoy the subjects they teach.

Percentage Of New STEM Jobs By Area Through 2018



Data Source: US-BLS Employment Projections, 2008-2018 (http://www.bls.gov/emp/ep_table_102.pdf).

Sources:

Bert Mayes: [China's manufacturing industry becoming less competitive](#)

Charlotte Observer: [The next generation of rock stars might be geeks](#)

Source: <http://stemcareer.com/stem-fast-facts/>

College Planning
YouCanGo!
SAT
AP
PSAT/NMSQT
CLEP
For Educators

Find Colleges, Advice and More

bigfuture
by The College Board

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Major and Career Search

Browse major and career profiles using the categories below, or use the tools on the right to search by keyword or interest.

MAJOR CATEGORIES	CAREER CATEGORIES
<ul style="list-style-type: none"> Arts and Humanities Business Health and Medicine Multi-/Interdisciplinary Studies Public and Social Services Science, Math, and Technology <ul style="list-style-type: none"> Agriculture and Related Sciences Architecture and Planning Biological and Biomedical Sciences Communications Technologies Computer and Information Sciences Engineering Engineering Technologies Math and Statistics Natural Resources and Conservation Physical Sciences Science Technologies Social Sciences Trades and Personal Services 	<ul style="list-style-type: none"> Arts, Entertainment, and Sports Business Health and Medicine Media and Social Sciences Public and Social Services Science, Math, and Technology <ul style="list-style-type: none"> Architecture, Engineering, and Drafting Computers and Math Environment Science Trades and Personal Services

Source: <https://bigfuture.collegeboard.org/majors-careers>

Modernized Learning initiative: Research suggests 4 main components are required in order for the initiative to be successful:

1. Vision – Goal will be to maximize student engagement and increase differentiation in classrooms through the use of technology integration.
2. Administrative Support – This project is now receiving strong support
3. Technology Support – Will need to secure additional tech support as we add additional laptops for student use.
4. Training –LLC to provide training, coaching, and professional development

<u>Teachers and Subjects for 2015-16</u>	<u># Students</u>	<u># Laptops</u>
<u>Adam Swavely</u> – Biology –	128	Existing
<u>Jenna Adams</u> – Honor’s Earth Science & Earth Science -	100	30
<u>Christina McCoach and Ashley Fogerty</u> – Co-Taught Earth Science –	90	30
<u>Katie Davis and Jackie Perry</u> Co-Taught Earth Science –	100	30
<u>*Tricia Flynn</u> – Calculus, Computer science, and AP Computer Sci -	100	30
<u>Matt Cappelletti & Mrs. Doran</u> -Probability & Statistics and Geometry -	118	30
<u>*Erin McAnallen</u> – AP Biology and Human Anatomy –	93	30
<u>Blossom Frank & Mrs. Myers</u> – Applied Science and Biology -	100	30
<u>Susan Hammond</u> – Biology –	79	30
<u>Amanda Birnbauer</u> – Physics -	<u>89</u>	<u>30</u>
	997	270

(18 laptops for teacher use)

288 Lenovo THINKPAD Yoga 11E laptops = \$254,769.93 (Leased over 3 years x .35014 = \$84,923.31/yr for 3 years) This is a budgeted expense.

9 mobile carts = \$13,041.00

Discussion and follow up from last year indicated that:

The pilot teachers who were able to use devices for all their classes (Adam Swavely and Erin McAnallen) were much more consistent in their use of technology in their classes. These two teachers, in addition to having a set of devices assigned to individual students, also had a laptop cart for students to use in their other classes. This allowed for them to plan instruction for all their students, not just one class. This, in turn, allowed them to put more energy into their planning and become more skilled in the use of the technology as an instructional tool; thus affording them a better opportunity to fulfill the Vision component of our Modernized Learning Initiative.

The students that received a device last year seldom, if ever, used their devices in other classes.

Tech support was not always available when the teacher needed support so we will need to provide dedicated tech support to those teachers who are part of this year’s cohort of teachers.

Recommendation:

1 – Purchase classroom sets of laptops for use in the classroom for all the students taught by the teacher(s). This will afford **997** students to experience “Modernized Learning”. Giving laptops to individual students in one class will result in a maximum of 270 students being impacted rather than 997 students by providing classroom sets. I currently have a cohort of very motivated teachers who have

bought into the idea of classroom sets, based, in part, upon the positive experience of Adam Swavely and Erin McAnallen. There will be a motion on the October Agenda to approve the lease agreement for the 270 devices and 9 carts

2 – We will need to secure additional tech support for this increase in devices.

Ongoing – Our goal is to have a very positive experience for the teachers and their students this year. In 2016-17 we plan to run another cohort of teachers, thus doubling the size of the teacher cohort who are participating in Modernized Learning. This year (2015-16) we have 14 teachers, representing 10 subjects, impacting nearly 1000 students. In this way we will have 28 to 30 total teachers who have received Modernized Learning training by the conclusion of the 2016-17 school year. Using this model we will, over the course of a few years, have a strong foundation for the use of technology in the High School.