SPRING-FORD AREA SCHOOL DISTRICT

Curriculum & Technology COMMITTEE MEETING MINUTES

Tuesday, March 5, 2019
6:30 p.m. in the DO Front Conference Room

Attendees – Mrs. Heine, Mrs. Fazzini, Mrs. Bast, Mr. Catalano, Mrs. Gardy, Mrs. Rochlin, Mrs. Reichwein, Dr. Colyer, Mrs. Zimmerman, Mrs. Drennan, Mrs. Earle, Mr. Cromley, Mrs. Long

DISTRICT MISSION STATEMENT
Spring-Ford Area School District strives to be educationally relevant, focused on achievement and growth, and have a priority on people so that students are fully prepared to positively contribute to their society.

CALL TO ORDER at 6:31 PM by Mrs. Heine

ANNOUNCEMENTS – None

I. PUBLIC TO BE HEARD ON AGENDA ITEMS ONLY – None

II. MINUTES – Accepted; all minutes will be posted with presentations to the website.

III. GOOD NEWS

On behalf of Dr. Julie Wollman, President of Widener University, and NBC10, congratulations! Lillian Evasew has been selected to receive the Widener University High School Leadership Award. As a recipient, Lillian will receive a $20,000 scholarship to Widener University over four years and will be named an Apogee Scholar should they enroll at Widener. As an Apogee Scholar, students will participate in a leadership development program in the Oskin Leadership Institute, which will include earning a Widener Leadership Certificate and participating in a variety of on-campus leadership development activities.

This award program is designed to recognize high school students in the region who have stood up for what is right, found a way to address a wrong, or have made a difference in a significant way. Lillian certainly has demonstrated these qualities, reflecting Widener University's long-standing commitment to inspiring and developing leaders to affect positive change.

IV. NEW BUSINESS

A. **Curriculum**

1. Technology & Engineering Department information- Mrs. Alison Reichwein provided an overview of the Technology and Engineering department including required and elective courses. She also provided a review of the PLTW courses offered.
2. Agenda item: Approval of purchase of new Health & PE materials – Mrs. Bast asked for approval from the committee to add the PE materials to the agenda; PE Materials just under $60,000, approval given to put on agenda
3. Agenda item: Math K-6 Resource Review and Request for Approval – Mrs. Rochlin provided a detailed presentation on the K-6 Resource Review. The final selection of the resource and accompanying on-line tool will be placed on the agenda for approval. Mrs. Heine asked that the presentation be shared with the board in the

Friday packet so that any questions could be answered at the Working Session. (ppt of presentation attached to minutes.)

4. Updates – ELA, other: Mrs. Gardy provided an ELA update which included: Literacy night 3/26, Federal programs grant is re-opened so we will be updating, Pre K program work is underway- screenings 5/13, 5/14; program is 6/24-7/25 at Brooke.

B. **Technology**

1. Preparing for Modernized Learning (ML) Deployment next year – Mr. Catalano talked about the devices that need to be ordered in preparation for next year. He requested permission to add the purchase 700 devices to agenda for this month, approval given. Mr. Catalano plans to have the teacher devices prepared for deployment prior to the end of the school year so the teachers are comfortable with the new device.
2. Phone System update – Mr. Catalano is working with a few vendors before making a final decision. More information to follow shortly.
3. Clever Update – Mr. Catalano shared that the single sign on "Clever" is being tested at Oaks, testing is going well and the kids love the product and ability to sign on so quickly.
4. Mr. Catalano shared that it was discovered that there is not a telephone line in RES elevator. He would like to put an action item on March agenda to address this. Installation cost is $170, with monthly fees. Tech team is investigating all other elevators to see if others are missing. After the meeting and prior to the board meeting it was discovered that two additional elevators did not have telephone lines. The installation of all three phone lines is on the agenda for approval.
5. Mr. Catalano is doing a piece in Ram Page for students regarding technology.

C. **Curriculum & Technology:** All systems running well – plans for next year continue

1. Training for Modernizing Learning grades 9-12 continues, both with Cohort V and the full 9th grade staff. The 7th & 8th grade teachers will continue to receive training this year with similar concepts- the implementation of the Spring-Ford Learning Model.
2. Hybrid classrooms are up and running!

V. OTHER BUSINESS - None

VI. ACTIONABLE ITEMS - Math and Health & PE Resources on agenda for approval, 700 laptops for ML on the agenda for approval, Three elevator telephone line installations cost on as an action item

VII. NEEDS FOR NEXT MEETING – Next meeting April 2, 2019; 6:30PM DO Conference Room

VIII. BOARD COMMENT – None

IX. PUBLIC TO BE HEARD – None

X. ADJOURNMENT

Welcome!

Technology Engineering & Education Courses

Technology Education	7th and 8th grade
Traditional	9th – 12th grade
Engineering	9th – 12th grade

Opportunities available in Technology Education

Traditional Technology Education courses

Middle School Courses

Grade 7

45 day cycles

Grade 8

45 day cycles

High School Courses

Technology Systems
Minor – 90 days
- Level I
- Level II

Materials Manufacturing
Minor – 90 days
- Level I
- Level II
- Level III

Grade 7

Course Description:

- An overview of Technology systems and the Design Process.
- Students form groups to create magnetic levitation train companies. Job applications, logos, money management are established. Students use skills in communication, problem solving, conflict resolution, teamwork and leadership to create a train.
- Train companies compete for speed, efficiency, and financial stability.
- As a follow up project students work with the FCS department to create displays for a Cupcake War contest.

Grade 8

Course Description:

- A review of Technology Systems and the Design Process.
- Paper Boat - how many marbles can your boat hold.
- Exploring Electricity - Learn the 4 parts of a circuit, DC vs AC, ohms law, conductors and insulators using snap circuits.
- West Point Bridge maker & Wooden Tower Project - Students create a 3 sided structure made out of wood. Tested on the stress analyzer to determine the amount of force the tower can hold.
- Aerodynamics Sail Cars propelled by the wind from an electric fan.

Technology Systems I and II

Course Description:

A cool, hands on, project and problem solving STEM based class that gives students a sample of the equipment and manufacturing processes used today in industry. Units of study examine transportation, communications and manufacturing. Students study computer aided design (CAD) software, 3D printing, CNC and other industrial equipment to complete several hands on and project based activities. Past projects have included 3D printed matchbox cars, magnetic boats, wooden toys, rockets, and electric cars.

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Technology Systems I and II

Materials Manufacturing I , II and III

Course Description:

This enjoyable class gives students a basic understanding of the materials and building techniques used in relevant industrial careers today. This unique opportunity gives students a chance to work with hand tools and material processing machines to complete several projects. Proper and safe use of tools, heavy equipment and finishing techniques are an essential parts of this course. Computer aided design (CAD) software and computer numerical control (CNC) equipment are introduced. Students can advance to complete more challenging and advanced techniques that require detail and precision in craftsmanship and technical equipment configurations.

Materials Manufacturing I, II and III

What does Engineering look like @ Spring-Ford?

The Project Lead The Way (PLTW) curriculum was introduced at Spring-Ford High School to provide students an opportunity to explore and experience engineering through a comprehensive curriculum emphasizing critical thinking, creativity, innovation, and real-world problem solving.

Engineering is a Science, Technology, Engineering and Mathematics (STEM) curriculum. Since our beginning in 2014, our program has flourished and the experiences beyond the PLTW curricular scope have offered Spring-Ford's students opportunities to engage in many exciting endeavors not found in a typical high school setting.

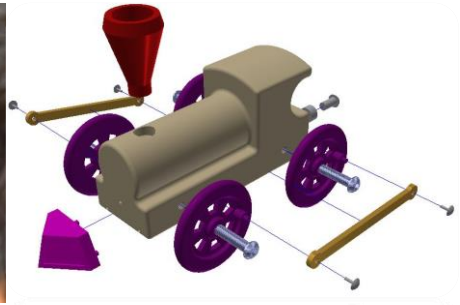
Honors Engineering courses offered at the high school

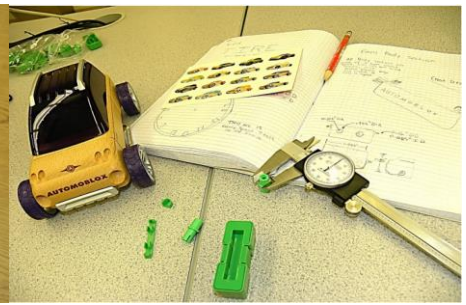
Grade 9-12	Introduction to Engineering Design (IED)	1 Credit
Grade 10-12	Principles of Engineering (POE)	1 Credit
Grade 11-12	Digital Electronics (DE)	1 Credit
Grade 11-12	Civil Engineering & Architecture (CEA)	1 Credit

Introduction to Engineering Design (IED)

Course Description:

Introduction to Engineering Design is an introductory course that develops students' problem-solving and critical-thinking skills and emphasizes the concepts of developing three-dimensional models and solid renderings of an object. Students focus on the application of visualization processes and tools provided by current, Autodesk software programs. IED emphasizes the design-development process of a product and how a product model is produced, analyzed, and evaluated, with a Makerbot 3D printer. Design applications and possible career opportunities are explored and discussed in detail

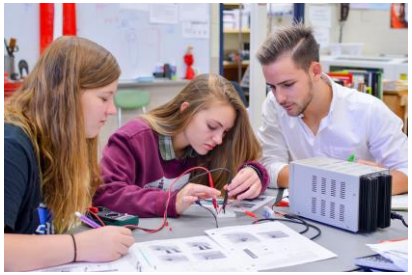
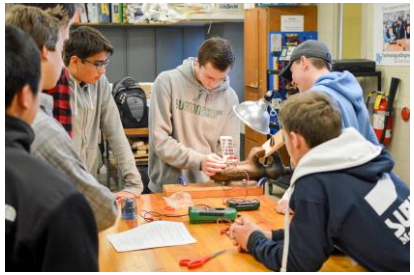





Principles of Engineering (POE)

Course Description:

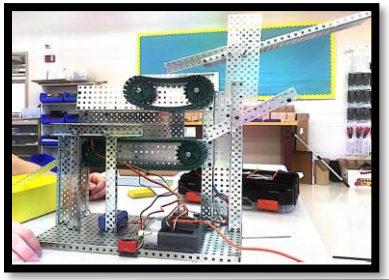
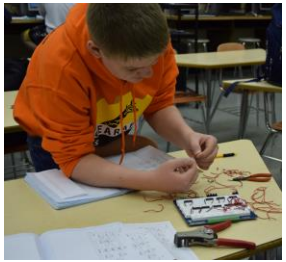
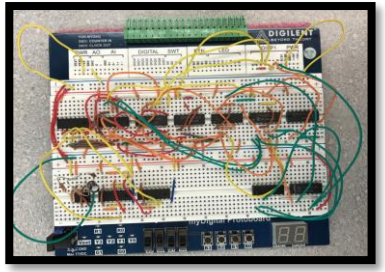
Principles of Engineering is a broad-based survey course designed to help students understand the field of engineering and engineering technology and its unlimited and diverse career opportunities. Students continue the development of problem-solving and critical thinking skills required in their post-secondary pursuits and engineering careers. In exploring various and numerous engineering systems and manufacturing processes, the students also learn how engineers address concerns about the social and political consequences of technological changes. Through theory, guest speakers, and hands-on problem-solving activities, students experience firsthand what engineering is all about and are able to answer this question: “Is a career in engineering or engineering technology for me?”

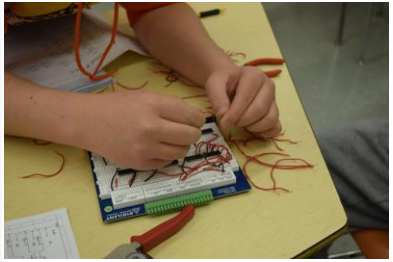



Digital Electronics (DE)

Course Description:

Digital Electronics is a course of study in applied digital logic and is patterned after first semester digital electronics courses taught in two and four year post secondary schools typically found in watches, calculators, video games, and computers, and they utilize Boolean logic in the solution of problems. Smart circuits are present in virtually all parts of our lives, and their use is rapidly increasing, making DE a critical course of study for any student pursuing a career in engineering technology. Using the latest software systems available to industry, students also test and analyze simple and complex digital circuitry. Students design circuits; export their designs to a printed circuit autorouting program that generates printed circuit boards; and construct designs, using chips and other DE components.

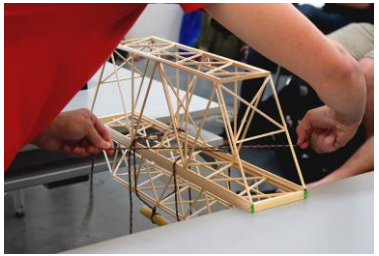







Civil Engineering & Architecture (CEA)

Course Description:

Civil Engineering and Architecture (CEA) is a high school level specialization course in the PLTW Engineering Program. In CEA students are introduced to important aspects of building and site design and development. They apply math, science, and standard engineering practices to design both residential and commercial projects and document their work using 3D architectural design software. Utilizing the activity-project-problem-based (APB) teaching and learning pedagogy, students will progress from completing structured activities to solving problems that require them to develop planning, documentation, communication, and other professional skills.



Other STEM Opportunities Available

Extra Curricular

TECH club (8)	TECH Club (9-12)
Computer club (8)	ACE Mentor (9-12)

Technology Engineering & Education Scholarship

College Credit Students have the opportunity to earn college credit by earning an 85% or better in the course and a successful score for the end of course exam.

PLTW + AP Recognition Students can earn this unique certificate after completing a combination of 3 AP and PLTW courses with high scores.

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Ian Fickert	**7th grade**
Chris OKonski	**8th grade**
Todd Roussey	**9th grade**
Dan Badway	**10-12th grade**
Alison Reichwein	**10-12th grade**

The K-4 Math Resource Review

2018-2019
(for implementation 2019-2020)

Resource Review not **Curriculum** Review?

- Our **Curriculum** is the PA Core. We constantly review this to be sure we are addressing the standards appropriately.
- The **materials** we utilize to teach the content within the PA Core framework is our **Resource**.

We reviewed our current resource, along with some other products to be sure we have the best possible materials to support our students' learning of the PA Core!

Spring-Ford Learning

is student-focused learning

PA Core Math

Focus strongly where the standards focus.

Coherence: Think across grades, and link to major topics within grades.

Rigor: In major topics, pursue conceptual understanding, procedural skill and fluency, and application with equal integrity.

The Products

A quick look...

Math in Focus®
Singapore Math®
by Marshall Cavendish®

This product is new to this area, and several of our surrounding districts use this program.

Everyday Mathematics®

This is our current resource for K-4 mathematics classrooms. This product has been in use at Spring-Ford for approximately 20 years.

EUREKA MATH™
FROM THE NON-PROFIT GREAT MINDS

This product comes from the non-profit "Engage NY"

Tech Resources We Investigated...

- **Freckle:** online, adaptive resource, creates personalized learning paths based on skills and PA Core standards

- **Khan Academy Mappers**: online, teachers create a customized playlist of math skills based on RIT scores

Khan Academy

- **Prodigy**: online, adaptive, creates personalized practice for students based on skills

- **ST Math:** Currently in use at both Hybrid buildings (SC and RES).
  - For grades K-6
  - Includes Fluency Component
  - Completely Visual: no language!

Tech Resources We Investigated...

Teachers Talk . . .

Advantages	Possible Disadvantages
New and fresh	No HW- teachers use resource to create own
Concrete- Pictoral- Abstract way of learning	Learn new program & new style of teaching
Mastery-based (no spiral)	Mastery-based (no spiral)
Emphasis on problem solving	How will this fit with Guided Math?
Emphasis on using manipulatives	Less opportunity for writing/written responses
	2020 version not available for preview until June...we are looking at the current version
	Would still need to supplement with tech

Math in Focus (Singapore Math 2020 Version)

Everyday Math 4 (current resource)

Advantages	Possible Disadvantages
We know it! We have local supports. (Wiss)	Program fatigue- We are sick of it!
Comprehensive, research-based, emphasizes problem-solving and writing in mathematics	The spiral (not mastery based)...hard for Special Ed and ELD kiddos
Working well with Guided Math	Lack of proper training (PD)...many have never been formally trained
Seeing good results, and continue to improve	
Opportunities for differentiation	
Can supplement with a good online program or tech resource to support guided math	
Spiral allows for continued practice	

Advantages	Possible Disadvantages
Emphasis on problem solving	No online platform (unless you pay for the digital suite...so it's really not free)
Free	Duplicating of resources
	If not duplicating, must purchase books
	How will this fit with Guided Math?
	Learn whole new program & new style of teaching
Eureka aka "Engage NY" (Open Source Program)	Would still need to supplement with tech
	Few local districts use it

- **Freckle:**
  - Teachers LOVE this resource!! So do the kids!
- **Khan Academy Mappers**:
  - Teachers enjoy this resource for higher achieving students, grades 2 and up. Not as user-friendly.
- **Prodigy**:
  - Teachers enjoy this resource for grades 3 and up.

Khan Academy

prodigy

Teacher Feedback about Tech...

- **ST Math:**
  - Kids love it, teachers love it!
  - Emphasizes problem-solving and collaboration
  - Easy for teachers to manage and students to access!

Teacher Feedback about Tech...

What do teachers want most?

1. Time and commitment to Professional Development
2. Access to quality digital content for EVERY child
3. Resources that support small groups in the classroom (Guided Math), time to develop those resources with peers
4. A fluency instruction system or program
5. Resources to fill the gaps in the PA Core

No one wants to go backwards...

"Differentiated instruction is the future of effective instruction"

Dr. William Bender, *Education Week*

The Grand Plan...

2 Possible Scenarios Presented Themselves

- **IF**... we stayed with Everyday Math 4, we would be able to purchase a "companion" resource (online/tech tool) to fill in any gaps and to support Guided Math. We would also be able to "refresh" our supplies/manipulatives and bring in training and PD.
- **IF**... we selected a new program, we would not be able to purchase anything additional. We would only purchase the program itself. PD would be product training, not instructional practices.

As we considered the options...

- No clear advantage changing programs. PSSA data from Montgomery County districts using the other programs showed that we are achieving at comparable levels.
- Moving to another program may pull us away from what we have been trying to do with Guided Math. Our PD time would be consumed with program/product training instead of good instructional practices and student-focused learning.
- Other programs leave us with the same gaps due to the PA Core, with no room in the budget to remediate those gaps.

As we considered the options...

- Fluency: This is always an issue, and a new resource will not “fix” this. We are addressing fluency through Number Talks, and will also support Fluency through ST Math.
- No noticeable big “divide” among the teachers… not a whole lot of strong feelings about any of the options. Many are a bit “tired” from all of the program changes recently.
- There is a need to “refresh” our current practices and materials. Teachers are excited to begin this work.

As we considered the options...

Math in Focus	EM4	Eureka
$885,968.13	$399,927.82	FREE? Not Really...
*Includes 7 years of teacher and student materials *($820,268.13)* *Includes PD (5 days) *($65,700)*	*Includes 7 years of teacher materials/digital access *($53,861.70)* *Includes PD (31 days) *($49,500)* *Includes manipulative refresh *($143,794.12)* *Includes ST Math subscription and training *($152,772)* **Buildings will continue to purchase student materials annually (same cost)	*This option was eliminated before pricing was explored. This program was not a good fit for our district.

And the winner is...

Everyday Mathematics®