



ALL PROGRESS, NO PERFECTION

SPENCER KIPER
2019 LOUISIANA STATE TEACHER OF THE YEAR



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@2019LATOY



@EGMSTEM,
@SpencerKiper



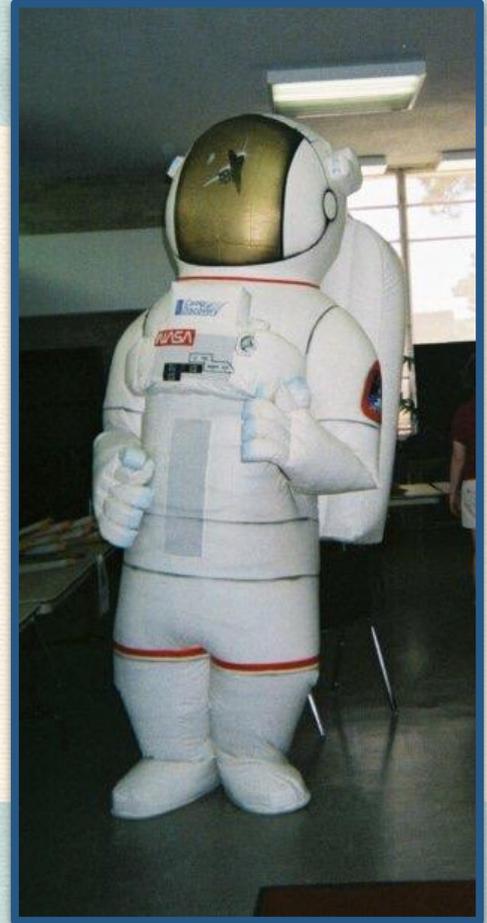
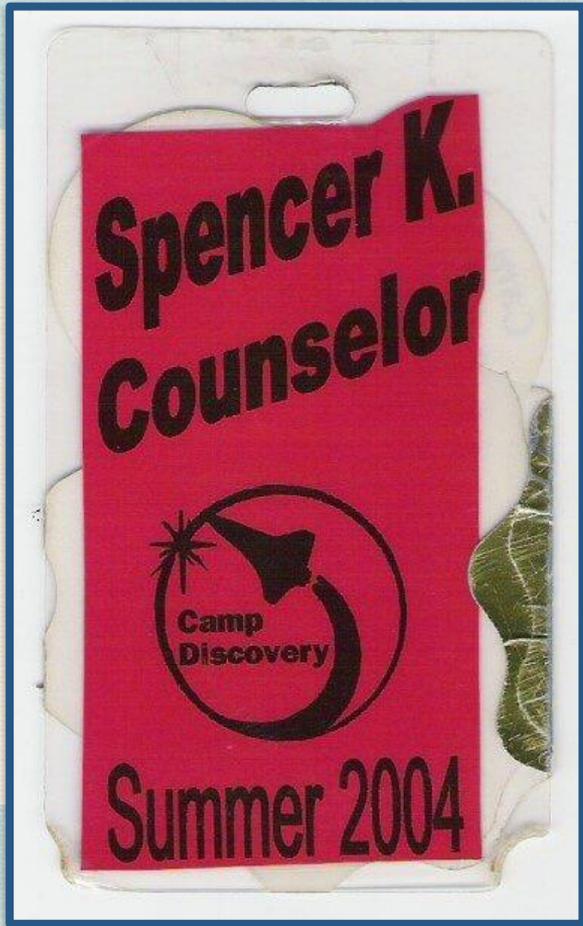
Spencer.Kiper@
gmail.com

CAMP



“Nerd”
/nɜrd/





CAN THIS EXIST OUTSIDE OF CAMP?

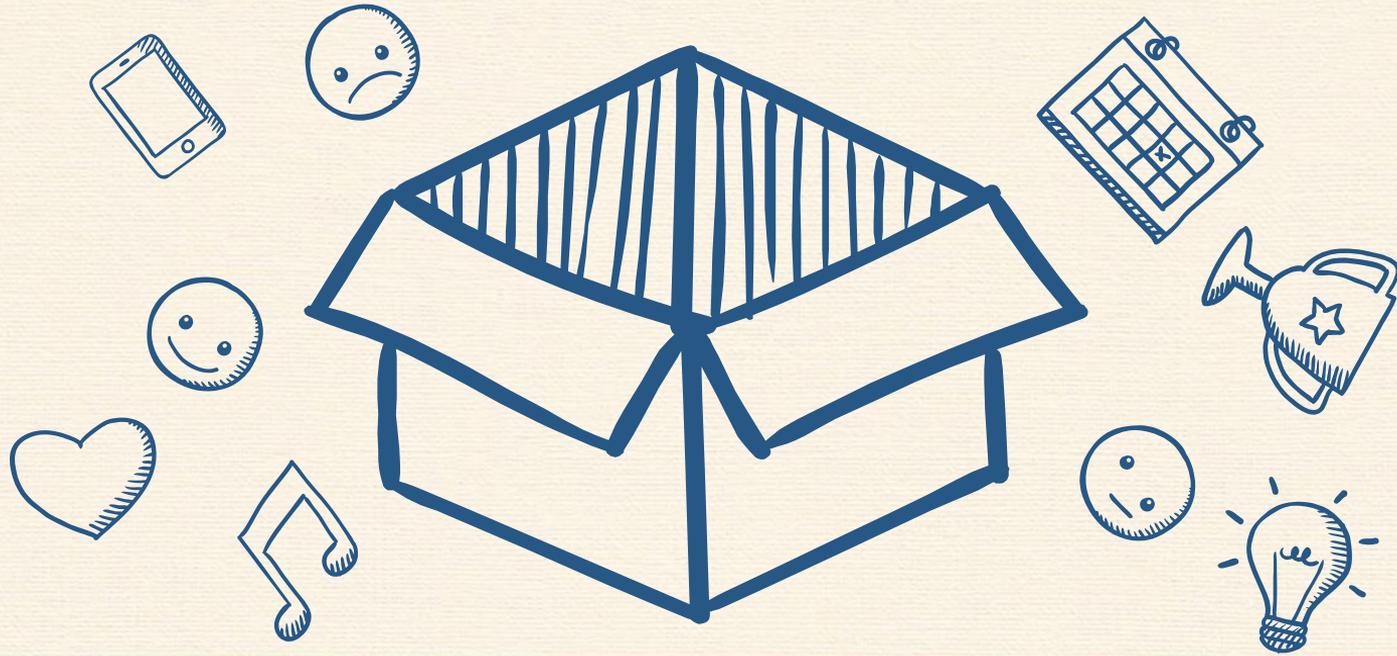
The question I kept returning to as I returned to life as a high school student and aspiring teacher was *if* and *how* I could translate the “camp” experience into something longer than a week.

Can the same level of excitement and engagement exist within a school?



ELM GROVE MIDDLE SCHOOL STEM LAB, BOSSIER CITY

WHAT DOES AFTER SCHOOL PROGRAM LOOK LIKE FOR KIDS IN YOUR COMMUNITY?



HOW DO WE INSPIRE TEACHERS TO BE INNOVATIVE THROUGH AFTER SCHOOL PROGRAMMING?

Creative

RISK

Independence

When was the first time

you felt you were

Innovative?

inspired

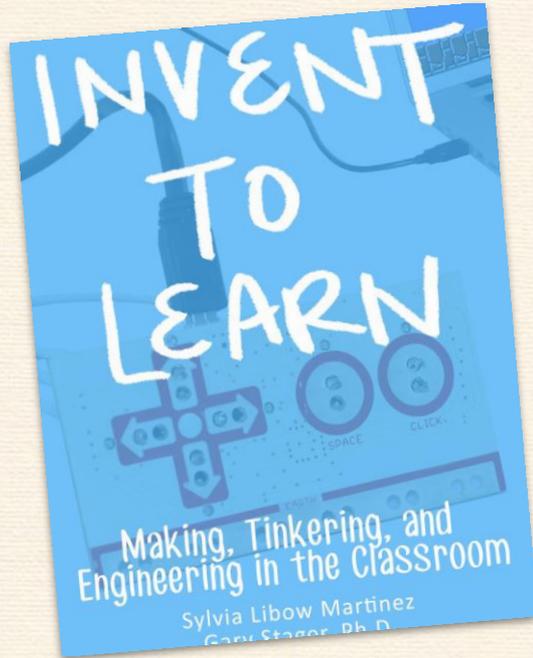
**DISRUPTIV
E**

EMPOWERED

HOW DO WE INSPIRE TEACHERS TO BE INNOVATIVE THROUGH AFTER SCHOOL PROGRAMMING?

When was the last time
you felt you were
Innovative?

HOW DO WE INSPIRE TEACHERS TO BE INNOVATIVE THROUGH AFTER SCHOOL PROGRAMMING?



- ***Invent to Learn: Making, Tinkering, & Engineering in the Classroom***
 - Ideas, ideas ideas!
 - Great source of websites and resources
 - Quick and reliable explanations and examples of current educational technology that anyone can understand

HOW DO WE INSPIRE TEACHERS TO BE INNOVATIVE THROUGH AFTER SCHOOL PROGRAMMING?



- *Launch: Using Design Thinking to Boost Creativity & Bring Out the Maker in Every Student*
 - Great for teachers looking for a creative “pick-me-up”
 - Realistic advice, little filler
 - Great examples of ways to incorporate **Design Thinking**.

HOW DO WE INSPIRE TEACHERS TO BE INNOVATIVE THROUGH AFTER SCHOOL PROGRAMMING?

Habits of Innovative Educators

- Challenge the Rules
- Take Risks
- Lead with Empathy
- Make New Connections
- Stay Curious
- Learn & Grow from Failure

MY JOURNEY TO DEVELOP AN INNOVATIVE EDUCATOR'S MINDSET

The Henry Ford Innovator Awards

- 10 awardees were chosen for their innovative work inside and outside of the classroom
- Many were curators of specialized programs
- All were advocates for experiential learning and creativity!



2017 AWARD
RECIPIENT!

MY JOURNEY TO DEVELOP AN INNOVATIVE EDUCATOR'S MINDSET



2017 HENRY FORD INNOVATOR AWARDEES



MY JOURNEY TO DEVELOP AN INNOVATIVE EDUCATOR'S MINDSET



SUBMISSIONS TO THE DETROIT AREA MAKER FAIRE





BUILDING A MODEL T

MY JOURNEY TO DEVELOP AN INNOVATIVE EDUCATOR'S MINDSET

Prior to The Henry Ford Experience

- Educational structures focused heavily on the Engineering Design Process
- Projects often focused on the development of a specific product in mind - everyone produces the same thing! This was clear in...
 - ◆ Electronics
 - ◆ Robotics
 - ◆ Engineering Design Challenges



MY JOURNEY TO DEVELOP AN INNOVATIVE EDUCATOR'S MINDSET

The Shift

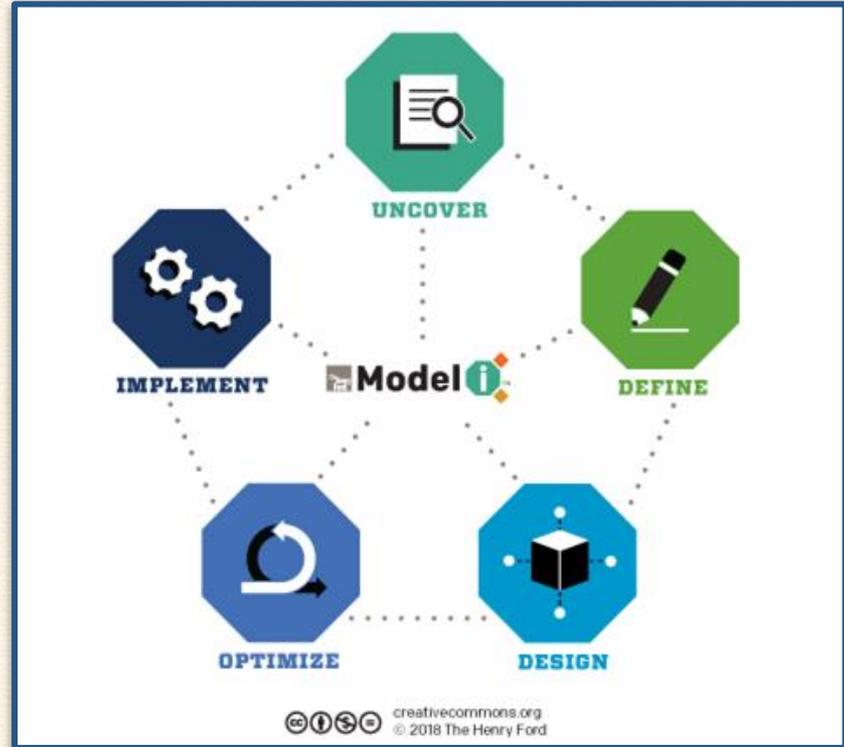
- Innovation and creativity became more than just passive outcomes; they became measurable outcomes
- Criteria was built into existing projects to streamline this new focus.
- Develop new engineering design project opportunities that are aligned to both new Louisiana Science Standards and THF Habits & Actions of Innovators



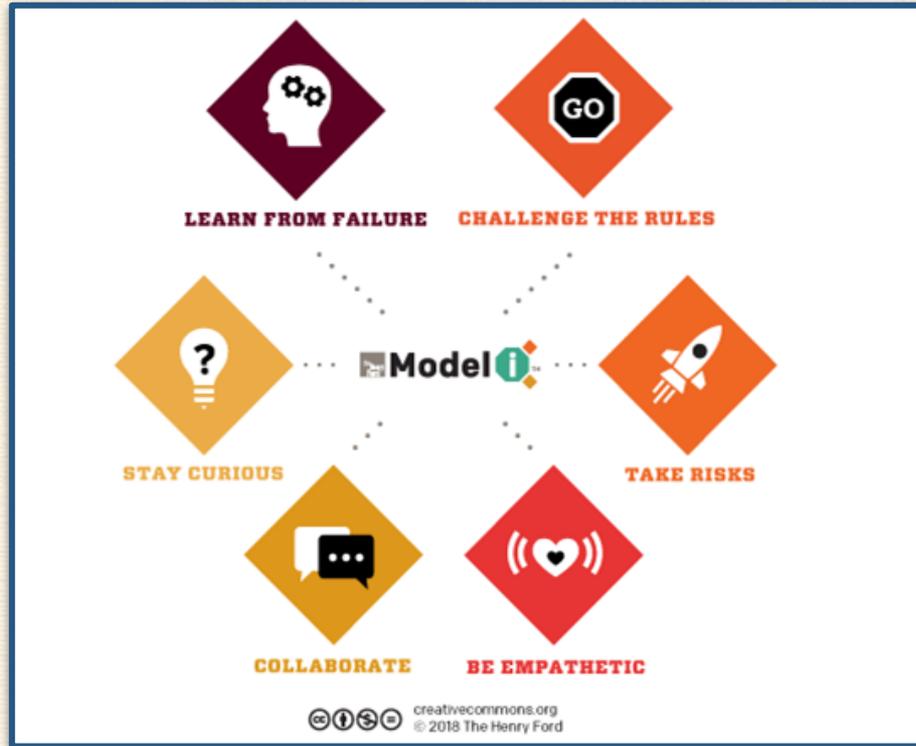
MY JOURNEY TO DEVELOP AN INNOVATIVE EDUCATOR'S MINDSET

Actions of Innovation

Innovation is messy and there's no one formula, but when we set out to pursue a new idea or solve a new problem, we can learn and act in ways that increase our chances of success. For would-be innovators, this **set of guideposts** helps to point the way forward.



MY JOURNEY TO DEVELOP AN INNOVATIVE EDUCATOR'S MINDSET



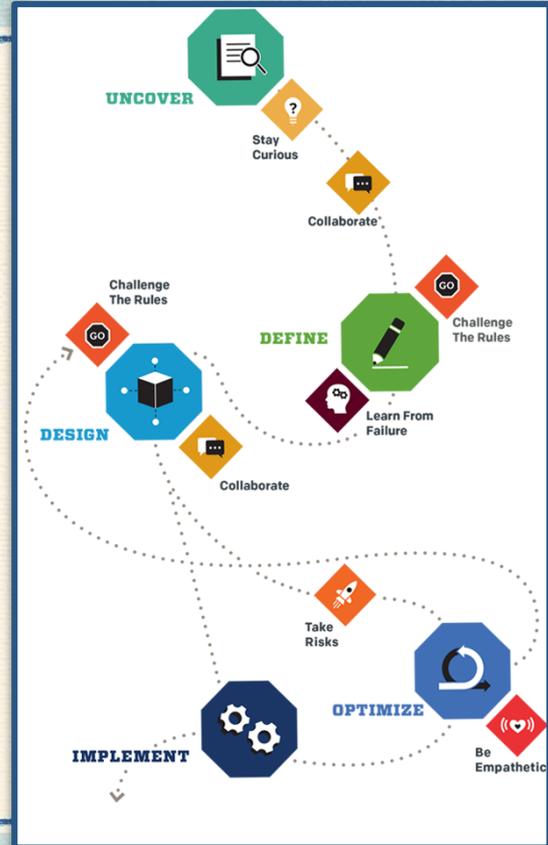
Habits of Innovation

Developing our mindset — the way we see, think and interact with something — turns out to be especially useful for staying motivated and inspired to explore new ideas and overcome challenges.

ADDING STEM-BASED RIGOR TO AFTER SCHOOL PROGRAMMING

Using Innovation as a Roadmap

- Keeping innovation and student creativity at the forefront of planning, I set out to design experiences that engage learners in unique after school enrichment experiences.
- These experiences took content and concepts that students were familiar with and gave them real world context.



ADDING STEM-BASED RIGOR TO AFTER SCHOOL PROGRAMMING

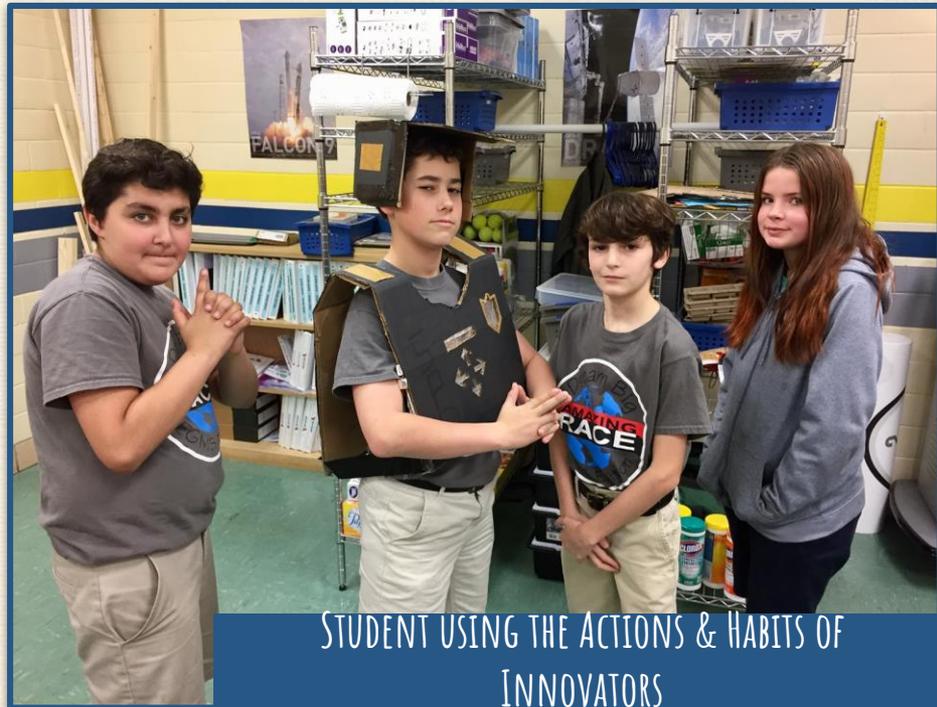
Invention Literacy = Looking at the world around us and creating new things.

“But I think the reason I really like the term “invention literacy” is because after spending last summer pushing myself to create, make, and dream up projects with Makey Makey and make all those things- well it changed me.”

- Colleen Graves, Educator & Makey Makey Consultant

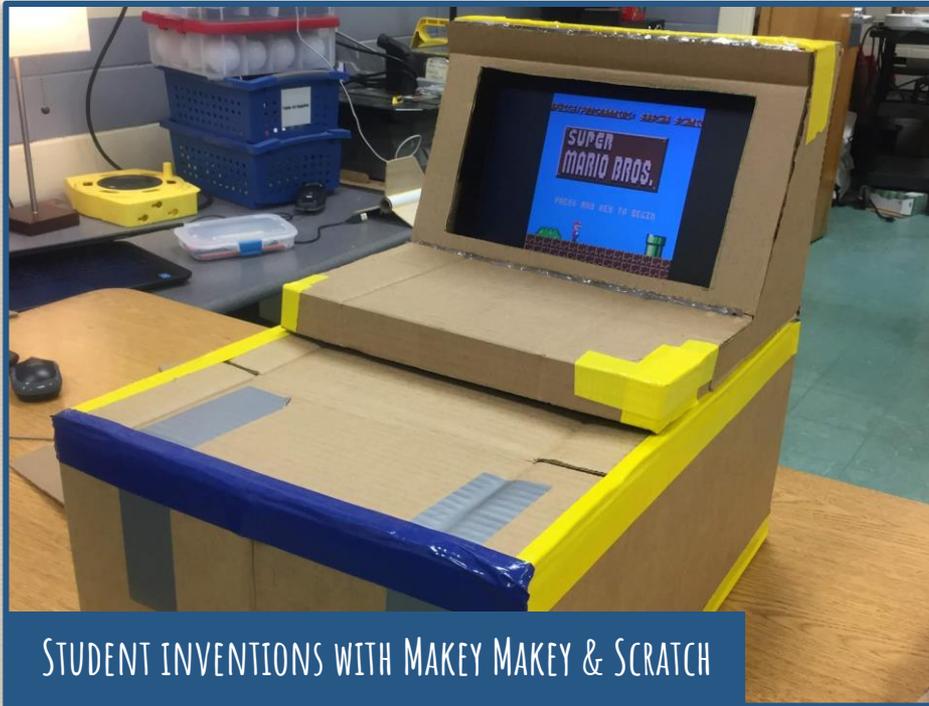


ADDING STEM-BASED RIGOR TO AFTER SCHOOL PROGRAMMING



STUDENT USING THE ACTIONS & HABITS OF INNOVATORS

ADDING STEM-BASED RIGOR TO AFTER SCHOOL PROGRAMMING



STUDENT INVENTIONS WITH MAKEY MAKEY & SCRATCH





STEM ON SCREEN
FESTIVAL
POPE FRANCIS
RBG

ROBINSON

CENTER
IGHT TO YOU BY
The Wall Center
Jade Medis

MAZE RUNNER

2018 STEM ON SCREEN FILM FESTIVAL



FEEDBACK FROM LOCAL INDUSTRY LEADERS



OPPORTUNITIES FOR NETWORKING
WITH LOCAL INDUSTRY LEADERS

ADDING STEM-BASED RIGOR TO AFTER SCHOOL PROGRAMMING

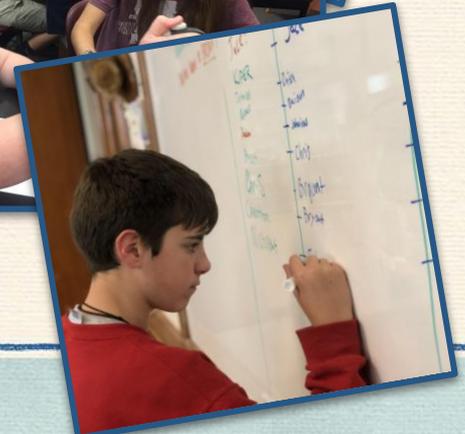


STUDENTS CONNECTING WITH STATE HIGHER ED INSTITUTIONS

ADDING STEM-BASED RIGOR TO AFTER SCHOOL PROGRAMMING

College/University Partnerships

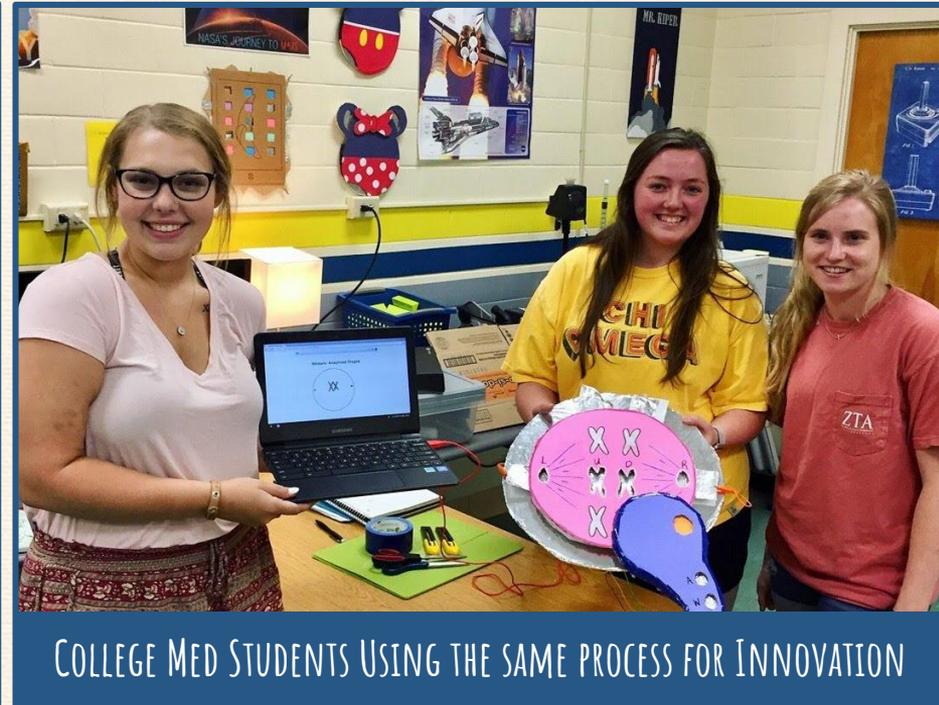
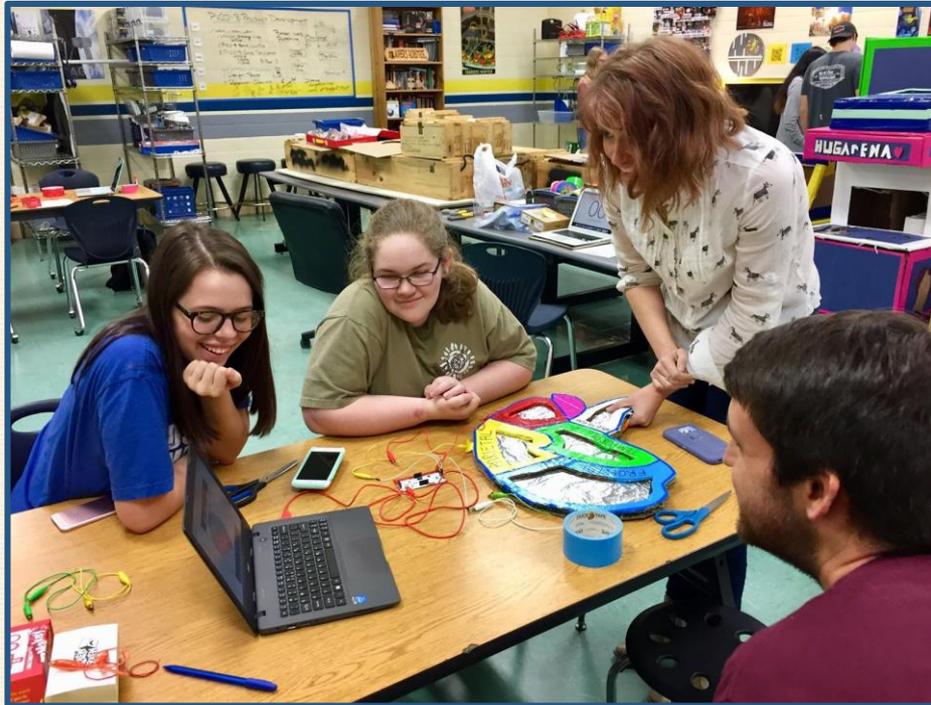
- Collaborative program between middle school and college level STEM programs - Campus2Campus Connection!
- Mutually beneficial partnership
- Creativity and innovation becomes a common, shared thread between middle school and higher education goals.





CAMPUS 2 CAMPUS CONNECTION
WITH CENTENARY COLLEGE

ADDING STEM-BASED RIGOR TO AFTER SCHOOL PROGRAMMING



COLLEGE MED STUDENTS USING THE SAME PROCESS FOR INNOVATION

ADDING STEM-BASED RIGOR TO AFTER SCHOOL PROGRAMMING



MORE EXAMPLES OF DESIGN THINKING & INNOVATOR'S MINDSET



FREE!
RESOURCES

FREE AFTER SCHOOL RESOURCES FOR TEACHERS

Teacher Resource: Google CS First

What is CS First?

Google has partnered with Scratch to bring computer science to all children. This free platform incorporates a flipped curriculum with high quality, easy-to-follow videos that introduce students to basic computer science concepts and computational thinking.

It's a great option for early finishers, enrichment, after school programming, and in-school STEM initiatives.

Like, free free?

Scratch is always free for any user. CS First gives Scratch the structure it needs to help our students grow and flourish with basic computer science concepts with Google's totally free curriculum.

Sign up and create a class to access all of the materials, including having materials shipped directly to your school, free of charge.

Curriculums include a variety of different entry/advanced level activities along with longer, multi-day themes.

Great for schools with limited access to STEM technology!



FREE AFTER SCHOOL RESOURCES FOR TEACHERS

Teacher Resource: Computational Thinking for Educators

An excellent extension resource for educators looking for more support!

Free & Self-Paced

Computational Thinking for Educators is a crash course in computational thinking that helps educators understand the key understandings and concepts around computational thinking.

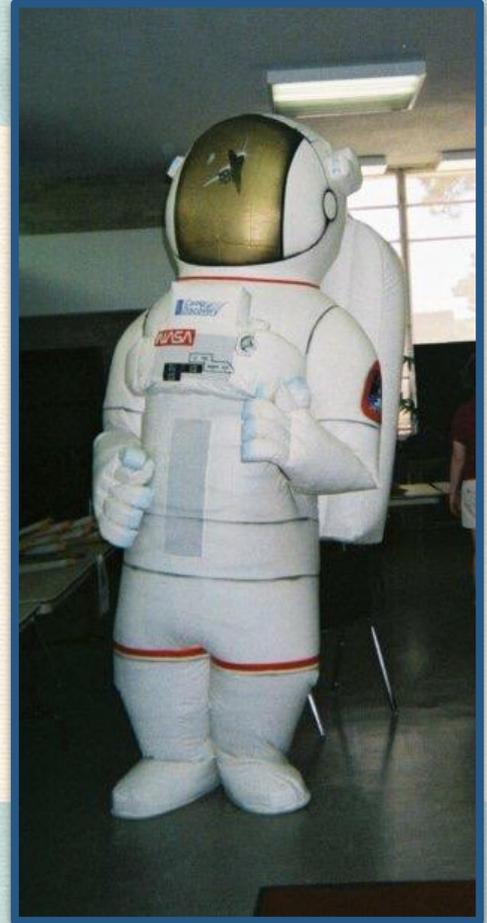
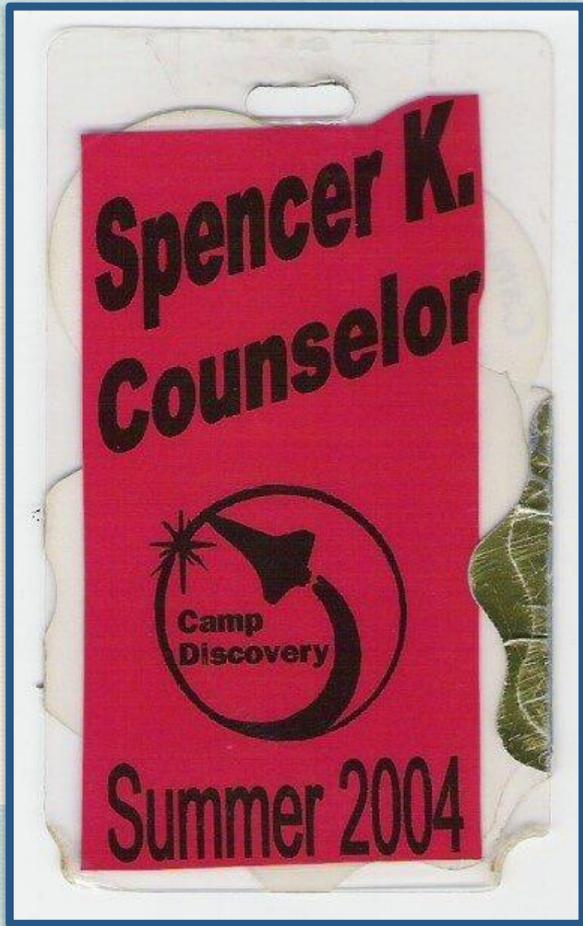
Sections focus on how to introduce big concepts to students and include thorough examples of exploring and applying algorithms, and finding patterns.

Content Specific Examples

Throughout the Computational Thinking for Educators course, concrete examples are included that help educators connect computational to various contents. These include :

- Mathematics
- Science
- Technology/Computer Science
- Humanities
 - Language
 - Music







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