STEM AND FCS EDUCATION

The world of education is buzzing about STEM. Is STEM really that big of a deal? What does that have to do with FCS? Why should we worry about it? Take your pick of the following.

by Lauren Miller

1 NATIONAL RANKING

Utah is currently ranked 11th in the nation for technology jobs as a share of total employment, and the goal is to be in the top ten. Both President Obama and President Trump have spoken about the importance of STEM jobs in our nation's future.

2 COLLEGE AND CAREER READY

The USBE aims to increase the number of students who are college and career ready from 35% to 45% by 2022. Our CTE Career Pathways are a perfect jump start solution for helping students prepare for a world beyond high school and exposing them to STEM.

3 EDUCATE THE ADMIN

According to a survey of 200 school administrators conducted by Illinois State University, 10 out of 22 administrators were able to correctly define STEM. Responses included statements about being "highly insulted to be expected to know this acronym."

4 FINANCIAL LITERACY

Personal finance is a perfect example of STEM in real life. Business professors at the Universities of Washington and Connecticut found that poor financial habits can lead to "further inequality in the distribution of income and wealth."

5 FIGHTING OBESITY

Nutrition is a science that too many ignore. Professors at North Carolina State University found that cooking at home is very beneficial in helping people follow the dietary guidelines and fighting obesity.

6 PUBLIC HEALTH CRISIS

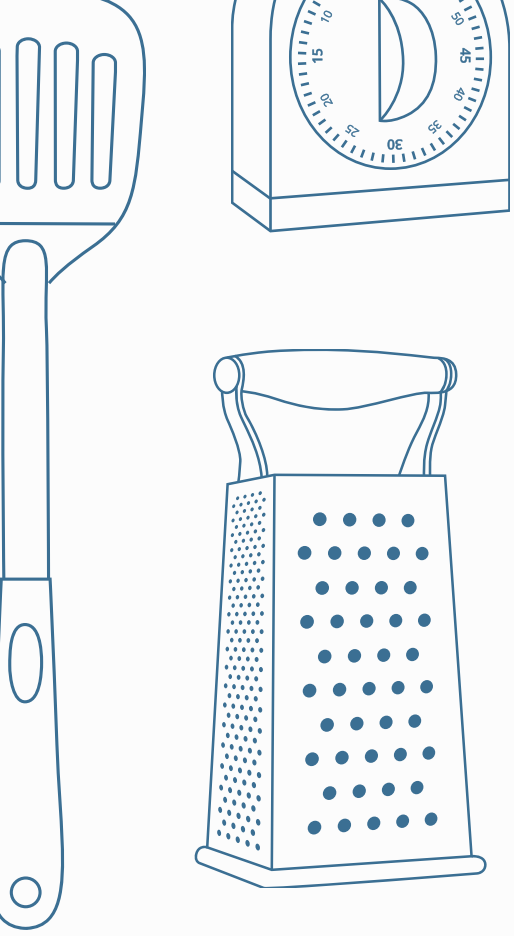
In 2016, Utah declared pornography a public health crisis. We discuss the importance of healthy relationships and behavioral science in class, which is STEM. But even if we didn't, we prepare our students for more than careers; we prepare them to be human.

7 GIRLS AND STEM

Google is partnering with Utah to better reach girls and connect them with STEM. According to a study by the University of Arkansas, 65% of students who enroll in FCS courses are female. We are uniquely able to reach their target market.

8 IN THE BEGINNING

Ellen Richards was the founder of FCS in the early 1900s. As the first woman admitted to MIT, she used her chemistry degree to teach women about food science and sanitation practices for the home. If she could do it then, we can do it now.



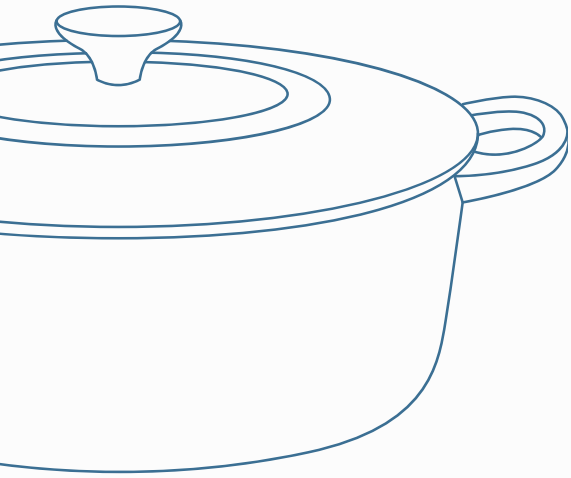
FOODS AND NUTRITION

STEM STRATEGIES

BY LAUREN MILLER

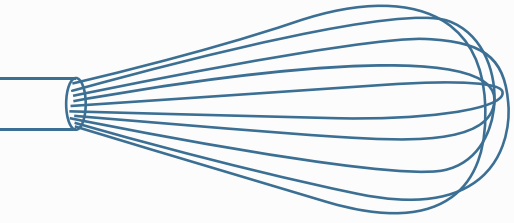
SCIENCE

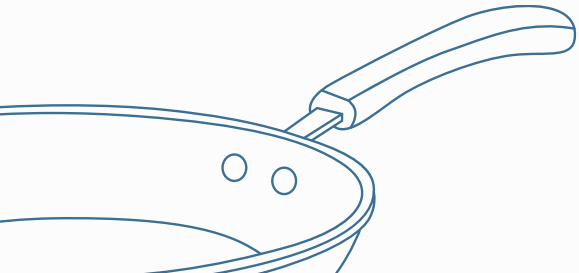
- Research Assignment: Research a topic you're discussing and write a paper or create a pamphlet. Hot topics in the industry (GMOs, gluten, organic, etc.) are great. Talk about the importance of finding reliable resources.
- Experiments: Prepare a recipe with only some of the ingredients or making substitutions so students can understand the effect of each ingredient.
- Labs: Labs always let students see food science at work.
- Nutrition Labels: Practice reading nutrition labels on different food products so students can understand the nutritional value.
- Food Borne Illness: Research a food borne illness and how it spreads. Look up recent outbreaks of that illness.

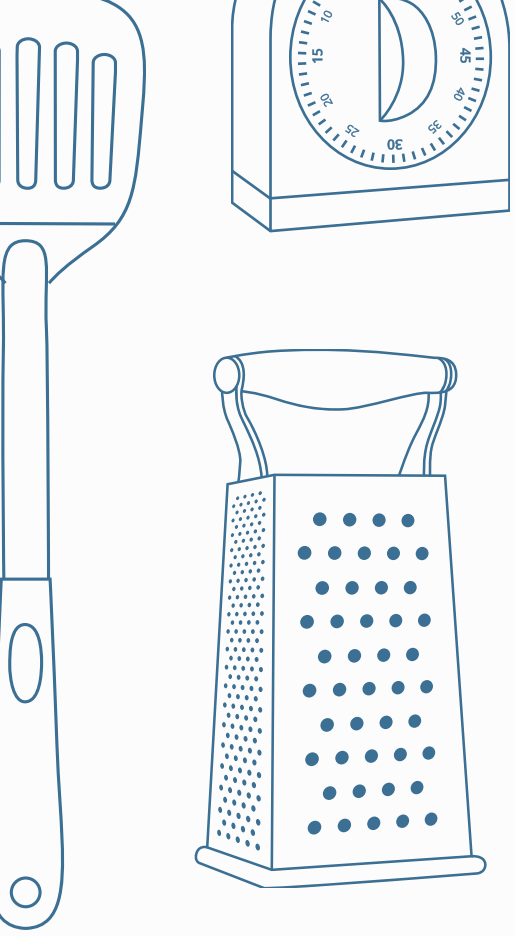


TECHNOLOGY

- Learning Management System: Set up a classroom website where students can complete assignments, access missing work, etc.
- YouTube Videos (Always preview!): A good way to reinforce a topic or spend a few extra minutes. Good choices include: Epicurious (4 Levels; Kids Try; Basic Skills Challenge), Ted Ed, Tasty.
- Podcasts (Always preview!): Use in class or assign as homework. Create a listening guide with questions. Some good choices include How I Built This; Stuff You Should Know.







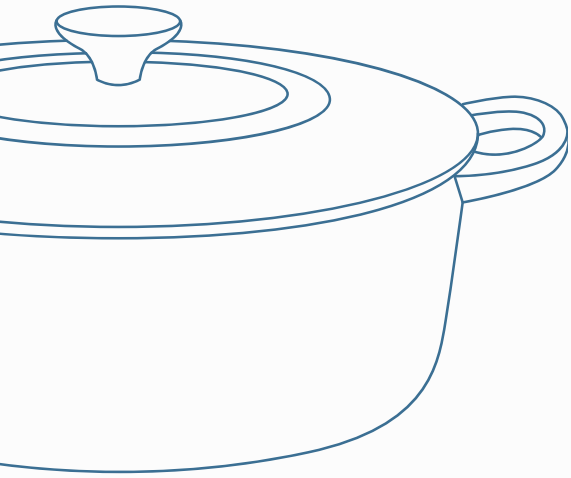
FOODS AND NUTRITION

STEM STRATEGIES

BY LAUREN MILLER

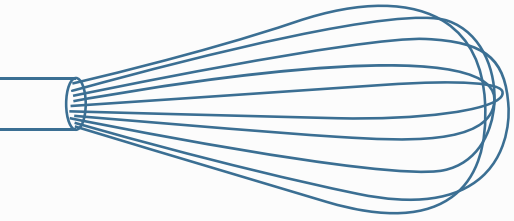
ENGINEERING

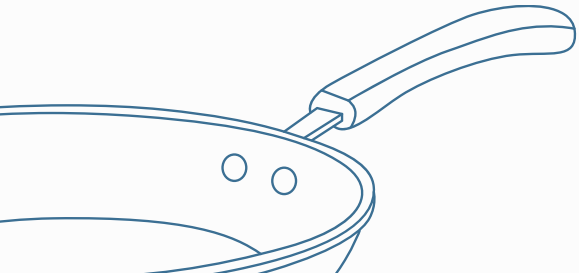
- Portfolio: Create a portfolio of projects or techniques completed in class. Include written instructions of how to use the technique shown.
- Design Equipment: Create a new piece of cooking equipment, such as a cookie cutter. Get it 3D printed if possible.
- Lesson Plans: Have students prepare a lesson about a topic. Have them create a lesson plan/handouts and give the lesson to the class.



MATH

- Recipe Math: Practice doubling and halving a recipe. Have a lab recipe written in odd amounts so students have to practice conversions (i.e. writing 16 tbsp instead of 1 cup).
- Costing Assignment: Calculate the cost of preparing a meal down to each ingredient. Try staying within a budget. Compare the cost of a homemade meal to a store bought or restaurant dish.
- Grocery Shopping: Discuss coupons, sales, and the overall shopping experience.





STEM Strategies

ADULT ROLES TEEN LIVING AND FINANCES

By Lauren Miller

Science

RESEARCH ASSIGNMENT

Research Assignment: Research a topic you're discussing and write a paper or create a pamphlet. Hot topics in the industry (student loans, domestic violence, etc.) are great. Talk about the importance of finding reliable resources.

BEHAVIORAL SCIENCE

Anytime you discuss human behavior, whether in romantic relationships, as a consumer, or being an employee, that involves the science of human behavior.

HUMAN ANATOMY

Teaching about human anatomy, such as the reproductive system and childbirth, incorporates science. Talking about STIs and how the spread incorporates health.

PARENTING STYLES

Have students research different parenting styles. How do they affect children? What are the positives and negatives?

Technology

LEARNING MANAGEMENT SYSTEM

Set up a classroom website where students can complete assignments, access missing work, etc.

YOUTUBE VIDEOS

Always preview! A good way to reinforce a topic or spend a few extra minutes. Good choices include: TED talks, Prager Univeristy

PODCASTS

Always preview! Use in class or assign as homework. Create a listening guide with questions. Good choices include: How to Money; Stuff You Should Know; Talking FACS.

ONLINE BANKING

Discuss various banking options, such as a physical bank vs an online bank. Have students analyze the advantages and disadvantages.

INVESTING APPS

Introduce students to the importance of investing. Research some of the investing apps available for smart phones, such as Robin Hood or Acorns.

ADULT ROLES TEEN LIVING AND FINANCES

Engineering

LESSON PLANS
Have students prepare a lesson about a topic. Have them create a lesson plan/handouts and give the lesson to the class.

PORTFOLIO
Create a portfolio of projects or techniques completed in class. Include written instructions of how to use the technique shown.

PARENTING SCHEDULE
Discuss the needs of children and the amount of time required. Have students try to create a schedule that accounts for work, school, and taking care of a child to help them understand the demands.

SERVICE LEARNING
Talk about needs that people who are in shelters have, such as a women's shelter. Have students plan, assemble, and donate needed items to a local facility.

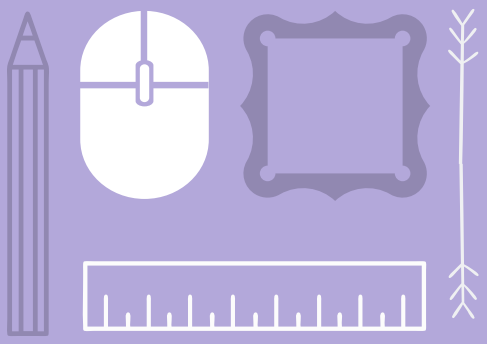
Math

COSTING ASSIGNMENTS
Calculate the cost of moving/buying a house, buying a car, having a baby, etc. down to specific items.

INVESTING
Discuss various methods of investing, such as Roth IRA or a 401K. Give students scenarios of various investment accounts and amounts to deposit. Have them calculate the investment reutrn at different points of time.

CREATE A BUDGET
Give students an annual salary with a list of expenses that need to be paid. Have students create a budget and show how they would allocate the money. Have them document what type of house, car, etc. they would choose.

GUEST SPEAKER
Invite someone like a realtor or a financial planner to come speak to your class. Have them discuss their experience and share advice from their fields.



INTERIOR DESIGN

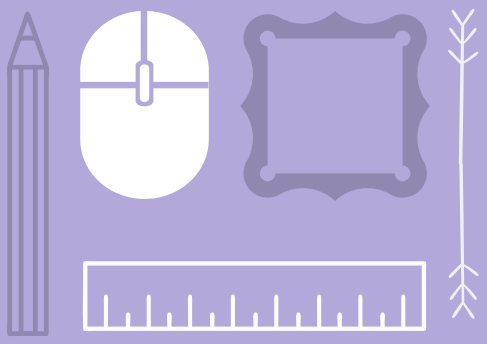
STEM STRATEGIES | LAUREN MILLER

SCIENCE

- Research Assignment: Research a topic you're discussing and write a paper or create a pamphlet. Hot topics in the industry (sustainability, green energy, etc.) are great. Talk about the importance of finding reliable resources.
- Fiber Types: Have students experiment with different fiber types used in home decor, such as the burn test. Record how different fibers behave.
- Principles of Design: Discussing the elements and principles of design incorporates science and how we react to our environment.

TECHNOLOGY

- Learning Management System: Set up a classroom website where students can complete assignments, access missing work, etc
- YouTube Videos: Always preview! A good way to reinforce a topic or spend a few extra minutes. Good choices include:
- Podcasts: Always preview! Use in class or assign as homework. Create a listening guide with questions. Good choices include: Talking FACS; Young House Love Has a Podcast; How I Built This.
- Design Programs: Use programs like Homestyler, floorplanner.com, and Roomle to design virtual spaces.
- Online Resources: Use resources such as Pinterest or Houzz to have students find examples of different elements of design.
- Photography: Have students take pictures of examples of principles learned in class, either around the school or on their own time.



INTERIOR DESIGN

STEM STRATEGIES | LAUREN MILLER

ENGINEERING

- Portfolio: Create a portfolio of projects or techniques completed in class. Include written instructions of how to use the technique shown.
- Lesson Plans: Have students prepare a lesson about a topic. Have them create a lesson plan/handouts and give the lesson to the class.
- Design Project: Have students design a room to scale on paper. This could be an original room or a remodel of an existing room.

MATH

- Costing Assignment: Calculate the cost of some part of the design process. Cost out a renovation from start to finish, or practice recreating expensive looks for a cheaper price.
- Drawing to Scale: Have students practice converting measurements as if they were creating a scale drawing of a room.
- Measurements: Talk about typical measurements for objects in design, such as doorways. Practice proper measuring technique.
- Housing Research: Have students compare the cost of different types of homes. Compare the cost of living in the city versus the suburbs or in different parts of the country.

CHILD DEVELOPMENT

STEM STRATEGIES

SCIENCE

- Research Assignment: Research a topic you're discussing and write a paper or create a pamphlet. Hot topics in the industry (vaccines, free range parenting, different birthing plans, etc.) are great. Talk about the importance of finding reliable resources.
- Developmental Stages: Discussing how a baby develops from conception onward naturally incorporates science.
- Science Experiments: Have students plan a lesson on basic science principles to teach to children, like planting a seed or making a volcano.

TECHNOLOGY

- Learning Management System: Set up a classroom website where students can complete assignments, access missing work, etc.
- YouTube Videos (Always preview!): A good way to reinforce a topic or spend a few extra minutes. Good choices include: Kids Try; Sprouts; TED Talks.
- Podcasts (Always preview!): Use in class or assign as homework. Create a listening guide with questions. Some good choices include: Stuff You Should Know; Talking FACS; How I Built This.

CHILD DEVELOPMENT

STEM STRATEGIES

ENGINEERING

- Design a Toy: Have students design a children's toy for a certain age or developmental stage. Explain how the toy fits that stage. If possible, have a toy 3D printed at school and used with children.
- Portfolio: Create a portfolio of projects or techniques completed in class. Include written instructions of how to use the technique shown.
- Lesson Plans: Have students prepare a lesson about a topic. Have them create a lesson plan/handouts and give the lesson to the class.

MATH

- Costing Assignment: Calculate the cost of something associated with raising a child, such as how much it costs to have a baby, including all the supplies like diapers and wipes. Look at the cost of daycare versus a stay at home parent.
- Teaching Math: Have students prepare a lesson that teaches basic math principles to children, like counting or matching numbers.

SEWING AND FASHION

STEM STRATEGIES
LAUREN MILLER

Science

- RESEARCH ASSIGNMENT: RESEARCH A TOPIC YOU'RE DISCUSSING AND WRITE A PAPER OR CREATE A PAMPHLET. HOT TOPICS IN THE INDUSTRY (SUSTAINABILITY, NATURAL VS SYNTHETIC FIBERS, INDUSTRY WASTE, ETC.) ARE GREAT. TALK ABOUT THE IMPORTANCE OF FINDING RELIABLE RESOURCES.
- FASHION PSYCHOLOGY: DISCUSS THE PSYCHOLOGY OF FASHION, INCLUDING WHY WE WEAR CERTAIN COLORS OR SILHOUETTES.
- FIBER TYPES: HAVE STUDENTS EXPERIMENT WITH DIFFERENT FIBER TYPES, SUCH AS THE BURN TEST. RECORD HOW DIFFERENT FIBERS BEHAVE.
- STAIN REMOVAL: HAVE STUDENTS EXPERIMENT WITH DIFFERENT METHODS OF REMOVING STAINS TO FIND WHAT WORKS BEST.

Technology

- LEARNING MANAGEMENT SYSTEM: SET UP A CLASSROOM WEBSITE WHERE STUDENTS CAN COMPLETE ASSIGNMENTS, ACCESS MISSING WORK, ETC.
- YOUTUBE VIDEOS (ALWAYS PREVIEW!): A GOOD WAY TO REINFORCE A TOPIC OR SPEND A FEW EXTRA MINUTES. GOOD CHOICES INCLUDE: BLUPRINT; MIMI G STYLE; NATIONAL SEWING CIRCLE.
- PODCASTS (ALWAYS PREVIEW!): USE IN CLASS OR ASSIGN AS HOMEWORK. CREATE A LISTENING GUIDE WITH QUESTIONS. SOME GOOD CHOICES INCLUDE: HOW I BUILT THIS; STUFF YOU SHOULD KNOW; LOVE TO SEW; SEWING WITH THREADS.
- MY BODY MODEL: SOFTWARE THAT TAKES YOUR MEASUREMENTS AND CREATES A CROQUIS OF YOUR BODY FOR DESIGNING.

SEWING AND FASHION

STEM STRATEGIES
LAUREN MILLER

Engineering

- REFASHIONING PROJECT: TAKE AN OLD GARMENT AND REFASHION IT INTO SOMETHING WEARABLE AND USABLE. DOCUMENT THE ENTIRE PROCESS.
- PATTERNS: ANYTIME STUDENTS HAVE TO EXECUTE A SEWING PATTERN, THEY ARE ENGINEERING.
- PDF PATTERNS: THERE ARE MANY COMPANIES THAT SELL PDF PATTERNS THAT CAN BE DOWNLOADED ONLINE AND PRINTED. THIS REQUIRES STUDENTS TO ASSEMBLE THE PATTERN BEFORE CUTTING OUT, WHICH ADDS ADDITIONAL ENGINEERING.
- PORTFOLIO: CREATE A PORTFOLIO OF PROJECTS OR TECHNIQUES COMPLETED IN CLASS. INCLUDE WRITTEN INSTRUCTIONS OF HOW TO USE THE TECHNIQUE SHOWN.
- LESSON PLANS: HAVE STUDENTS PREPARE A LESSON ABOUT A TOPIC. HAVE THEM CREATE A LESSON PLAN/HANDOUTS AND GIVE THE LESSON TO THE CLASS.

Math

- COSTING ASSIGNMENT: CALCULATE THE COST OF CREATING A DESIGN. PRACTICE RECREATING RUNWAY LOOKS AT A CHEAPER PRICE.
- SEWING MATH: HAVE STUDENTS PRACTICE THE MATH USED IN SEWING, SUCH AS DEALING WITH SEAM ALLOWANCE, CALCULATING YARDAGE, AND TAKING MEASUREMENTS.