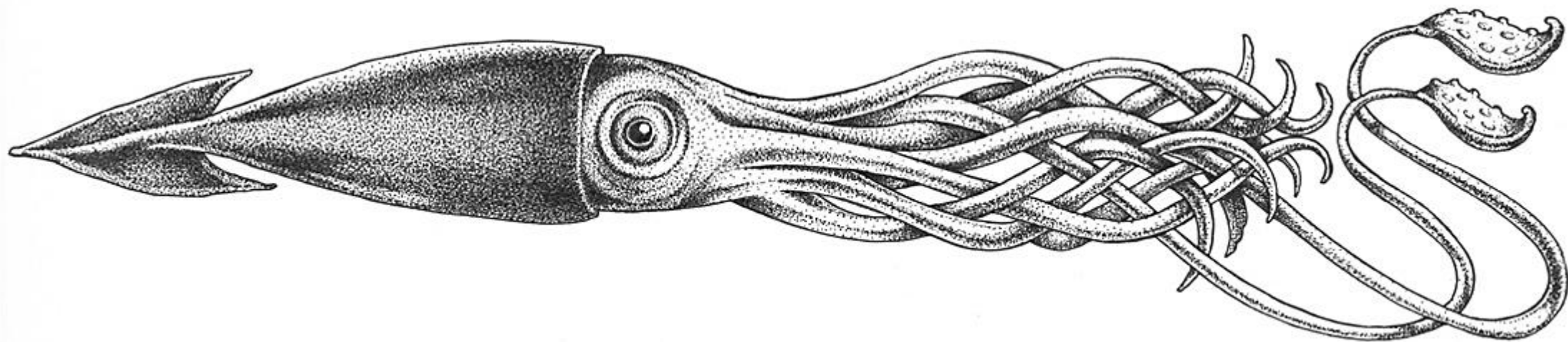




STEAM-TASTIC!





Stream Monitoring





CITIZEN SCIENTIST

Scientific research
conducted, in
whole or in part,
by an amateur
(or non-professional)
scientist







STEAM INITIATIVE

BRIDGING THE TECHNICAL SKILLS GAP

STEAM Lab Makerspace





STEAM Lab Makerspace – Clean Technology



STEAM Lab Makerspace – Dirty Technology

STEAM Lab Makerspace

STEM Explorers





STEM Explorers



Water Jet Cutter





Field Trips and Job Shadowing



Field Trips and Job Shadowing

STEAM Lab Makerspace

STEM Explorers

STEAM Camps





STEAM Camps

AGGREGATE CLUSTER - MANUFACTURING

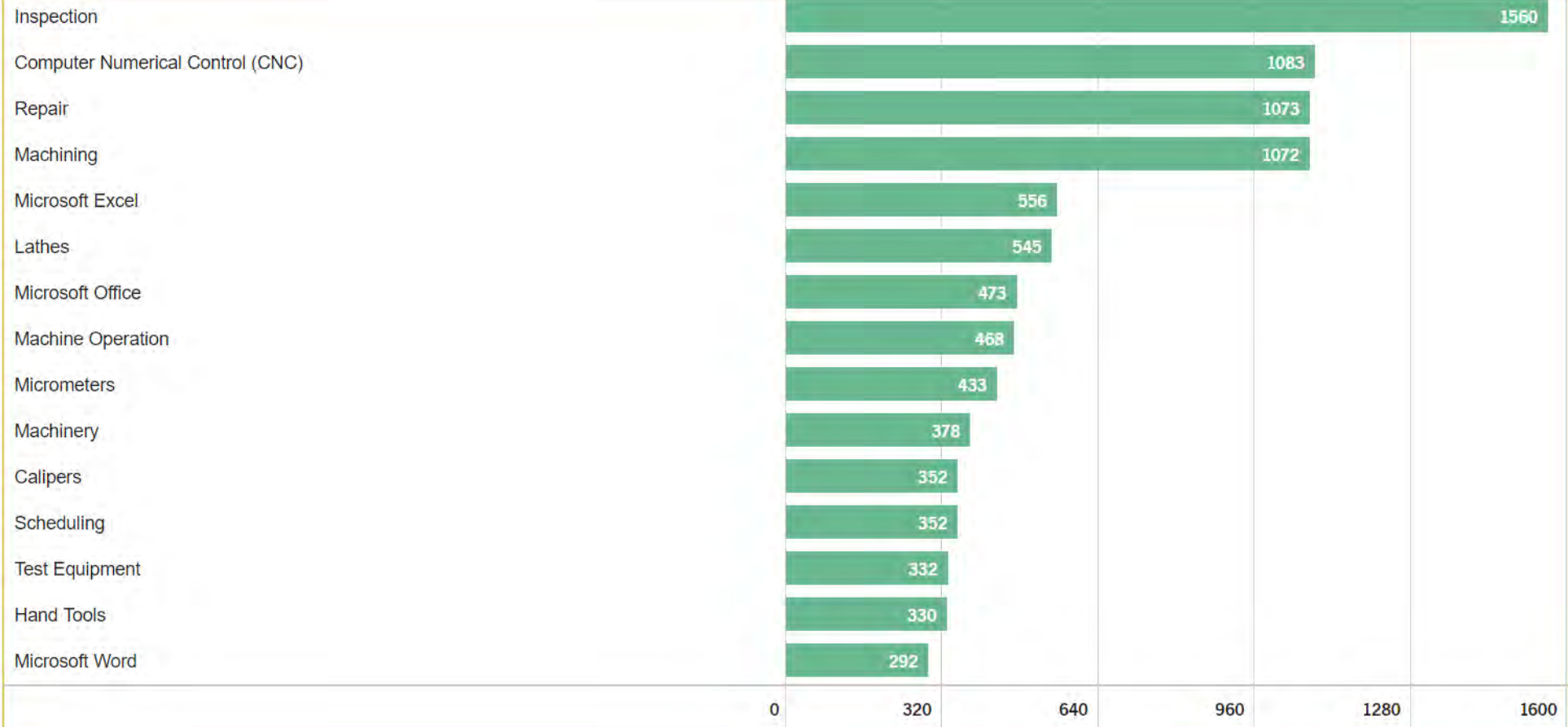
AGGREGATE CLUSTER - MANUFACTURING - FINGER LAK

1. OCCUPATIONAL GROUP
DEFINITION

2.

6. REAL-TIME LABOR MARKET
DATA

ABOUT



STEM EXPLORER BUTTONS

STEAM Lab Makerspace

STEM Explorers

STEAM Camps

FLX Maker Fest



SAVE THE DATE!

FLX MAKER FEST

PRESENTED BY THE PHELPS LIBRARY

SATURDAY
MAY 4 2019

WWW.PHELPSLIBRARY.ORG/FLXMF-HOME

SPONSORED BY
LISK
Activating the World

The FLX Maker Fest is a day for DIY Making, Discovery, & Innovation with hands-on learning in Science, Technology, Engineering, Arts, and Mathematics (STEAM), technical skills, and projects for ALL ages.

THIS IS A FREE FAMILY-FRIENDLY EVENT
FOR ALL AGES! 11AM-5PM.



Event will be held at the
Phelps Library & STEAM Lab Makerspace
8 Banta Street, Phelps, NY 14532



phelpslibrary.org/flxmf-home





phelpslibrary.org/flxmf-home

STEAM Lab Makerspace

STEM Explorers

STEAM Camps

FLX Maker Fest

STEAM Consultation



STEAM Lab Makerspace

STEM Explorers

STEAM Camps

FLX Maker Fest

STEAM Consultation

STEAM Scholarship



CREATIVITY

requires the courage
to let go of certainties.

ERICH FROMM

Know your

WHY

GIRLS, IF YOU WANT TO CHANGE THE WORLD (AND EARN A LOT), TRY STEM

FORBES, SEPTEMBER 11, 2018

“To get, and keep, more women in STEM, we need to show girls that STEM careers align with their interests, values, and desire to make an impact. The most efficient and scalable way to do this is by integrating real-world relevance into school... why focus on schools?

Because that's where the kids are.”



New Career Paths

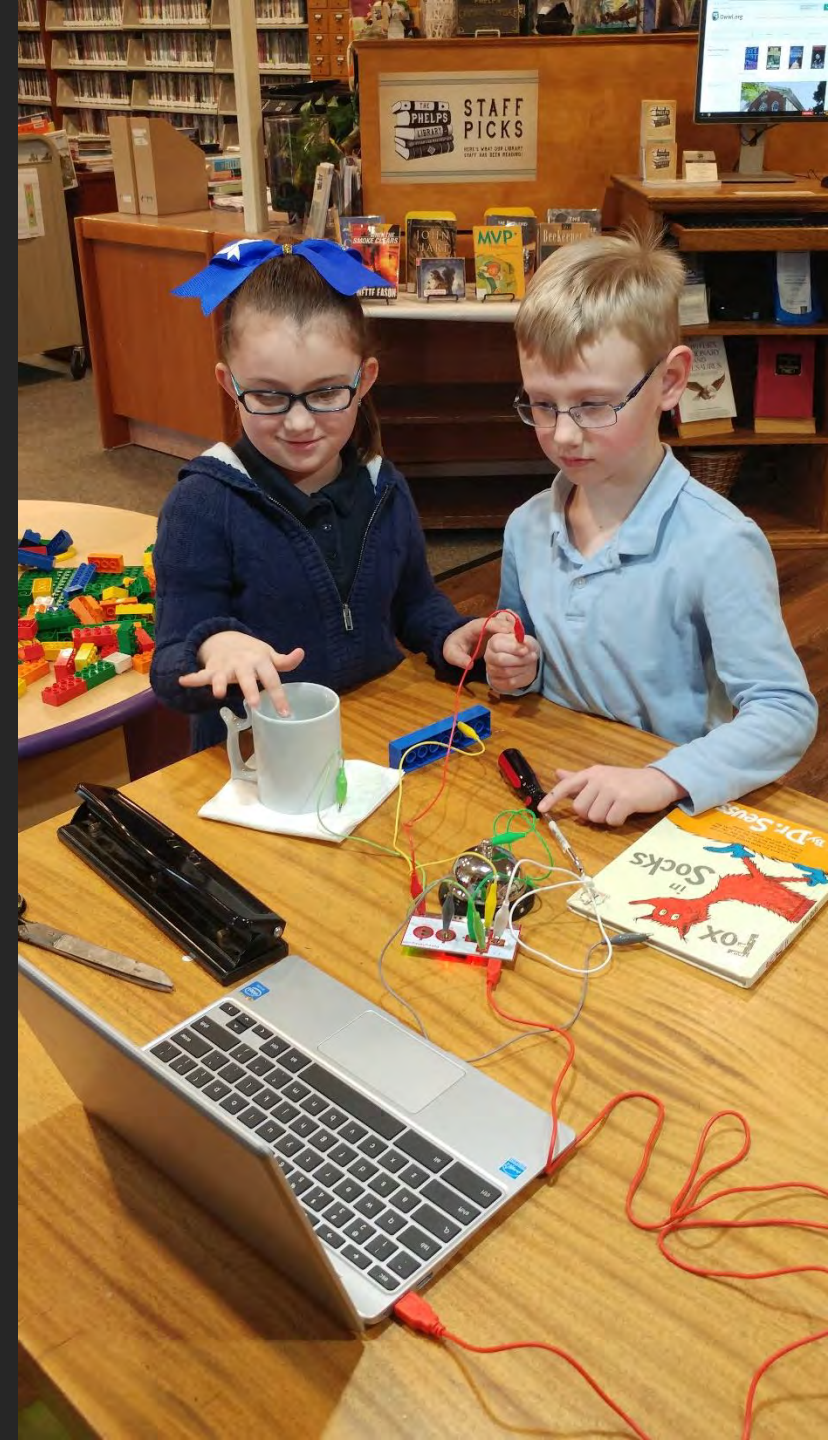
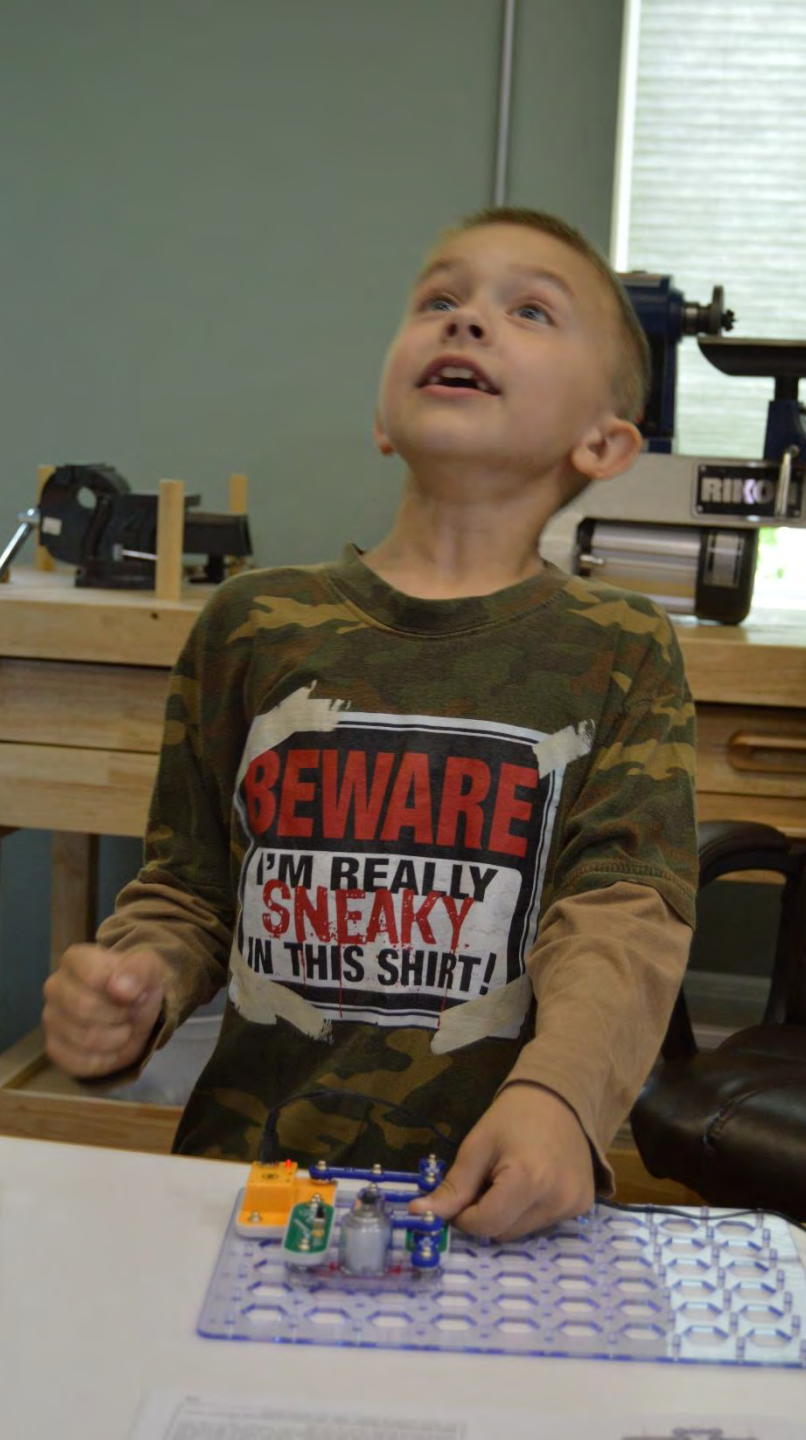
Problem-Solving

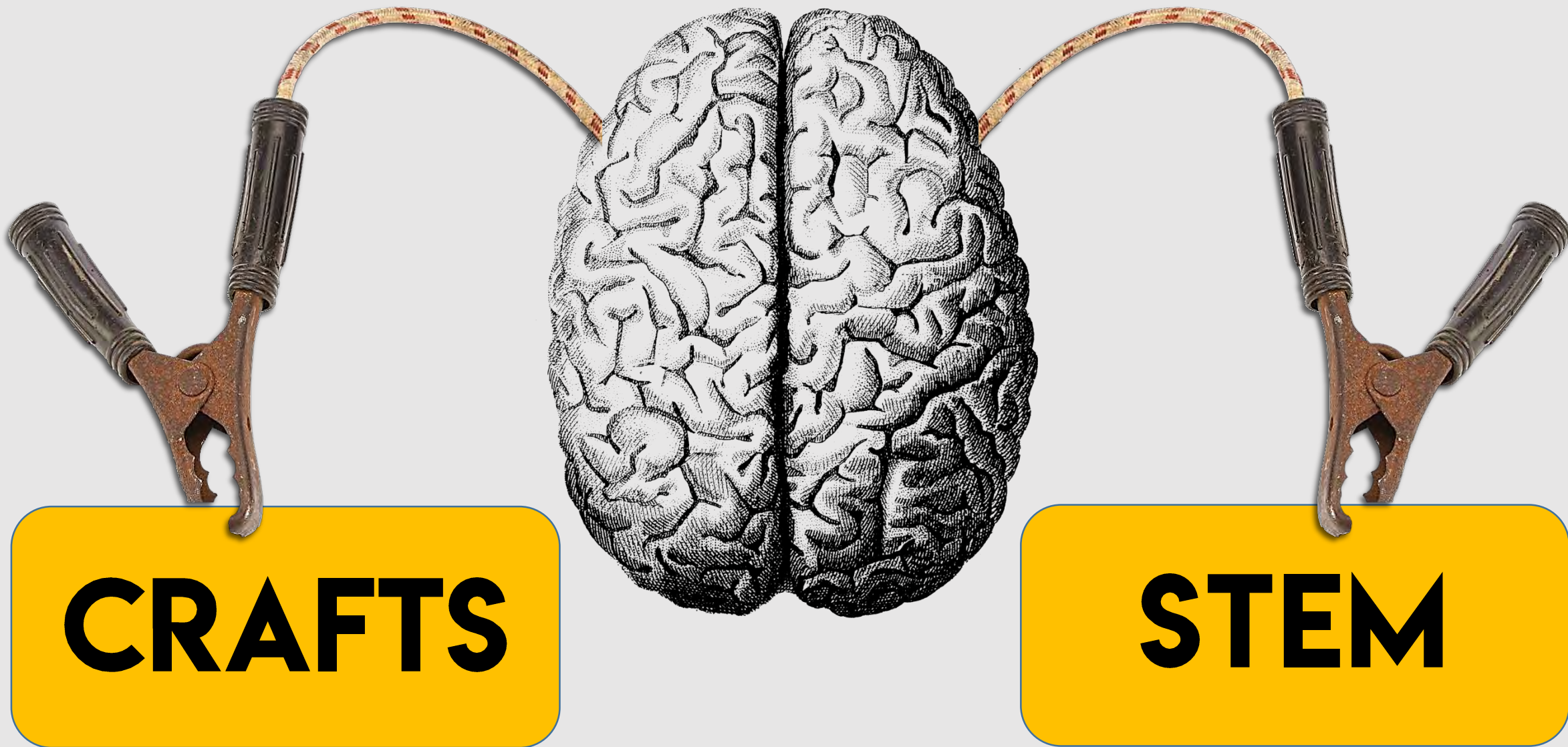
Empowerment

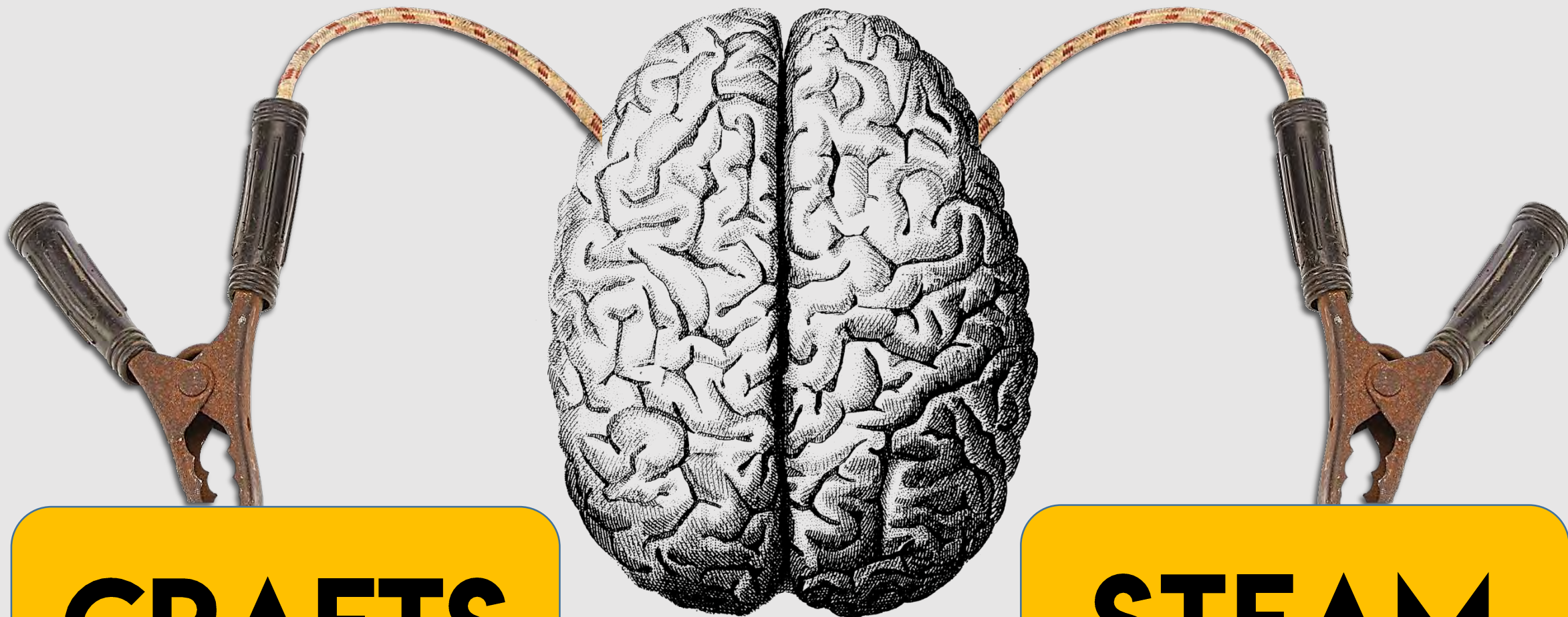
Practice for Life

Inspiration

Build Confidence

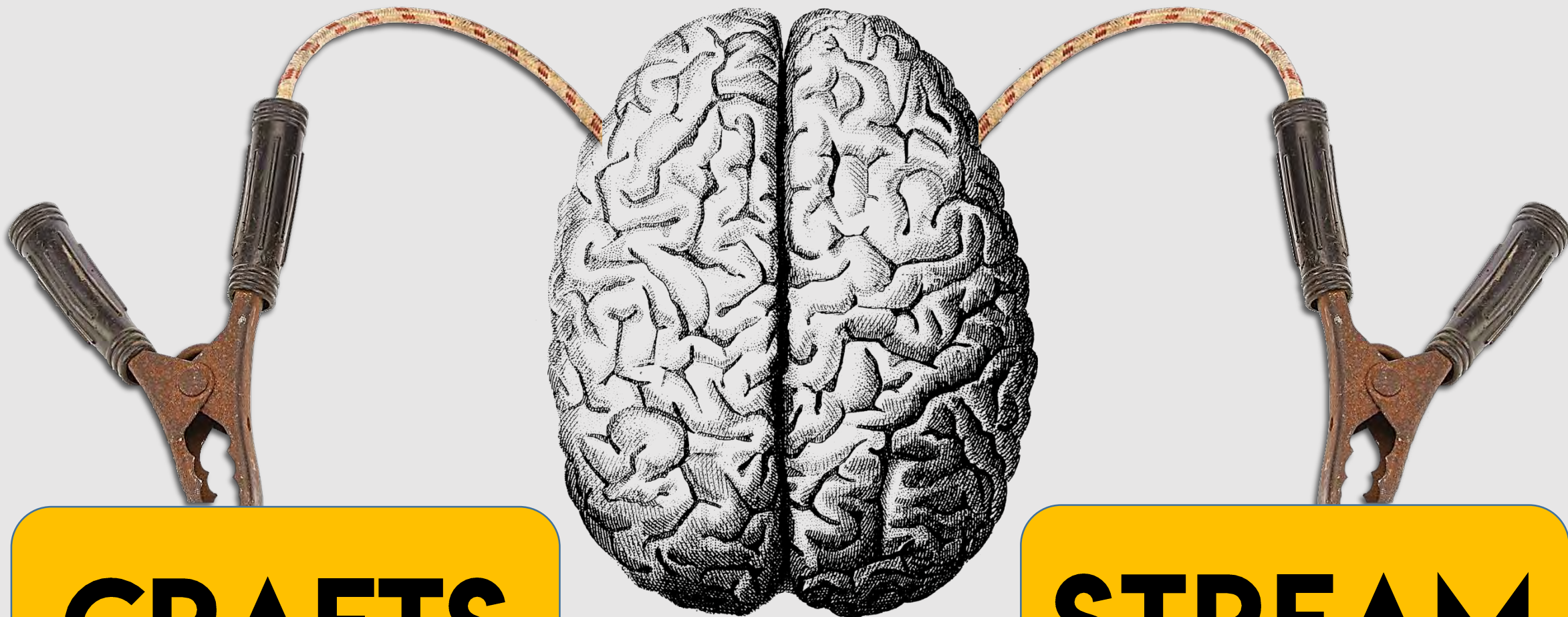






CRAFTS

STEAM



CRAFTS

STREAM

CRAFT → STEAM

Paper Engineering

Object Painting

Beginner's Sewing

Gardening

Wreathmaking

Fermented Foods and

Fiber Dyeing

Cheesemaking





PICK A COUPLE

YOU DON'T HAVE TO HAVE EVERY ASPECT OF STEAM



SCIENCE

ASKING THE QUESTIONS

Ask Questions
& Construct
Explanations

**WHAT
DO
I DO
NOW?**



What **observations** do you have?

What is the **problem**?

What can you **change/do** to help us answer this?

Do you have **evidence/data** to support this?

Can you **communicate** to the group what is going on?



CORSE WOOL

FINE WOOL

ALPACA

CASHMERE

SILK

LINEN

COTTON

POLYESTER

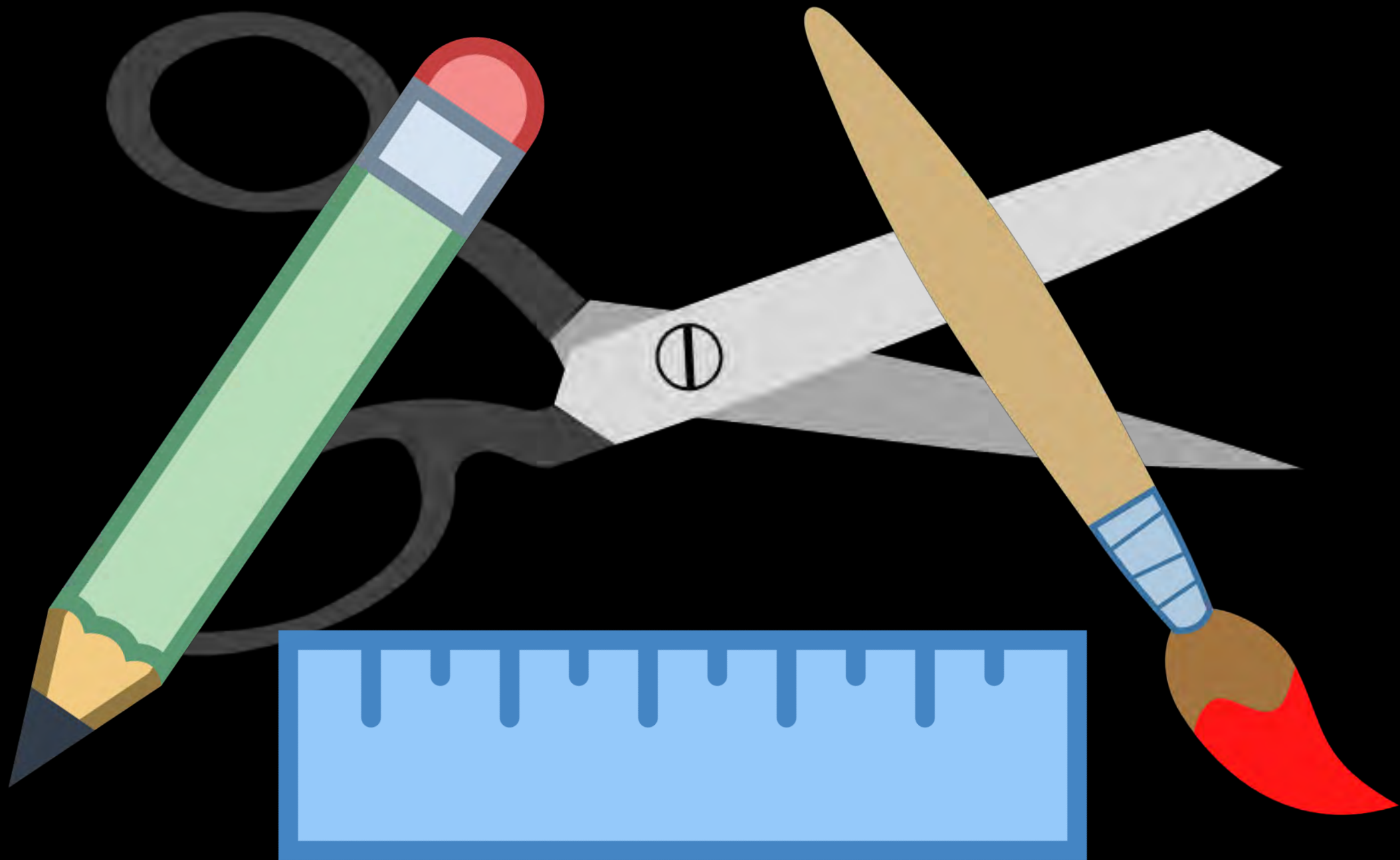
WET FELTING

**SILK
PAPER**

A top-down view of a wooden desk. On the left is a spiral-bound notebook with a grid pattern. In the center is a black watch with a silver buckle. To the right of the watch is a black pen. Below the pen is a black smartphone. The word 'TECHNOLOGY' is written in large, bold, yellow letters across the center of the image.

TECHNOLOGY

THIS ONE IS THE EASIEST!





READING

YOU'VE GOT THIS ONE COVERED!

The background of the image is a close-up, slightly blurred photograph of a workspace. It features a spiral-bound notebook with a silver metal spiral on the left. A crumpled blue piece of paper sits in the center. To the right, a black pen lies diagonally. The notebook pages are covered with various hand-drawn sketches, including a large circle, arrows, and some illegible text. The overall lighting is soft and focused on the central elements.

ENGINEERING

SOLVE A PROBLEM

Define Problems
& Solutions

**WHAT
DO
I DO
NOW?**

What's the problem?

How have others
approached it?

What are your constraints?

THE
ENGINEERING
PROCESS

ASK

1

What are some of your
ideas or solutions?

Brainstorm ideas.

What one will work best?

THE
ENGINEERING
PROCESS

IMAGINE

2

Draw it!

Make a list of materials
that you'll need.

THE
ENGINEERING
PROCESS

PLAN

3

Go for it!

Make it!

Try it out!

THE
ENGINEERING
PROCESS

CREATE

4

What works?
What didn't?

Try it again, and
make it even better!

THE
ENGINEERING
PROCESS
IMPROVE

5

THE ENGINEERING DESIGN PROCESS

DEFINE

the problem

IDENTIFY

constraints on your solution (e.g. time, money, materials) and criteria for success

BRAINSTORM

multiple solutions for the problem

SELECT

the most promising solution

PROTOTYPE

your solution

TEST

and evaluate your prototype

ITERATE

to improve your prototype

COMMUNICATE

your solution



**TALLEST
TOWER**

A close-up, artistic photograph of various art supplies. In the upper left, three tubes of paint are visible: one with a yellow cap, one with a blue cap labeled 'Cerulean Blue', and one with a red cap. To the right, several paintbrushes with bristles coated in various colors of paint are scattered. The background is a wooden surface, possibly a table or easel, which is covered in numerous paint splatters and smudges in shades of red, blue, green, and brown. The lighting is dramatic, with strong highlights and deep shadows, creating a textured and creative atmosphere.

ART

INFUSE YOUR UNIQUE CREATIVITY



MATH

NO PROBLEM!

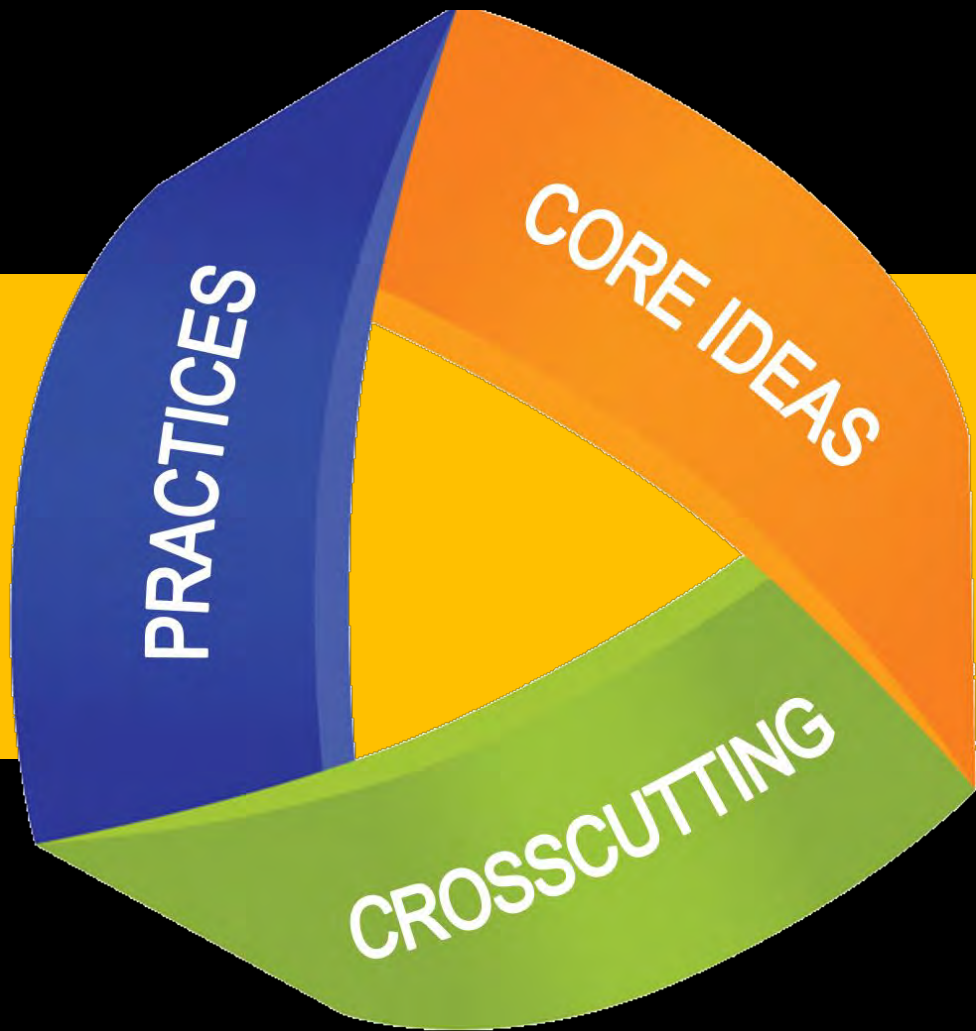
NEEDLE FELTING

ROLLER COASTER

A large, rustic wooden wagon wheel is the central focus, partially obscured by a semi-transparent dark band. The wheel is made of weathered wood with several spokes. The background is a lush field of tall green grass and various leafy plants, some with small white flowers. The overall lighting is warm and natural, suggesting a sunny day.

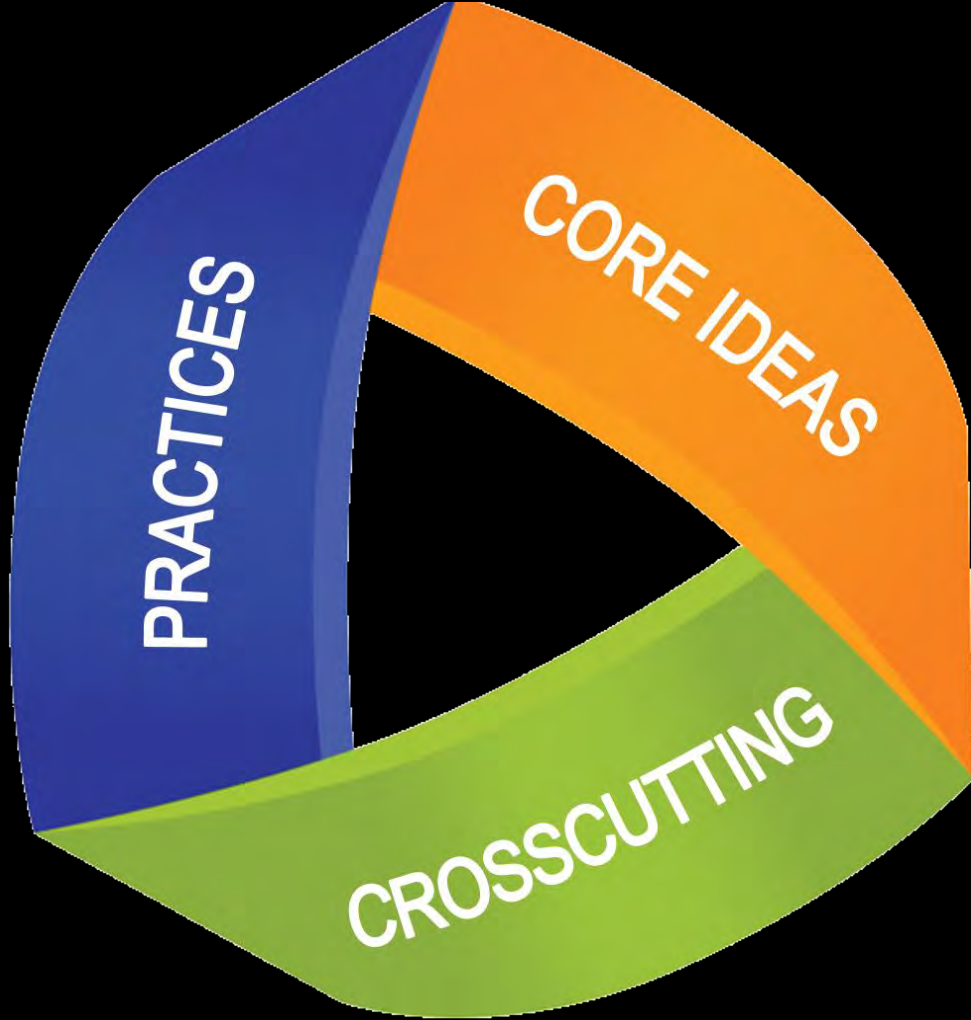
METHODS

THREE DIMENSIONAL TEACHING & LEARNING



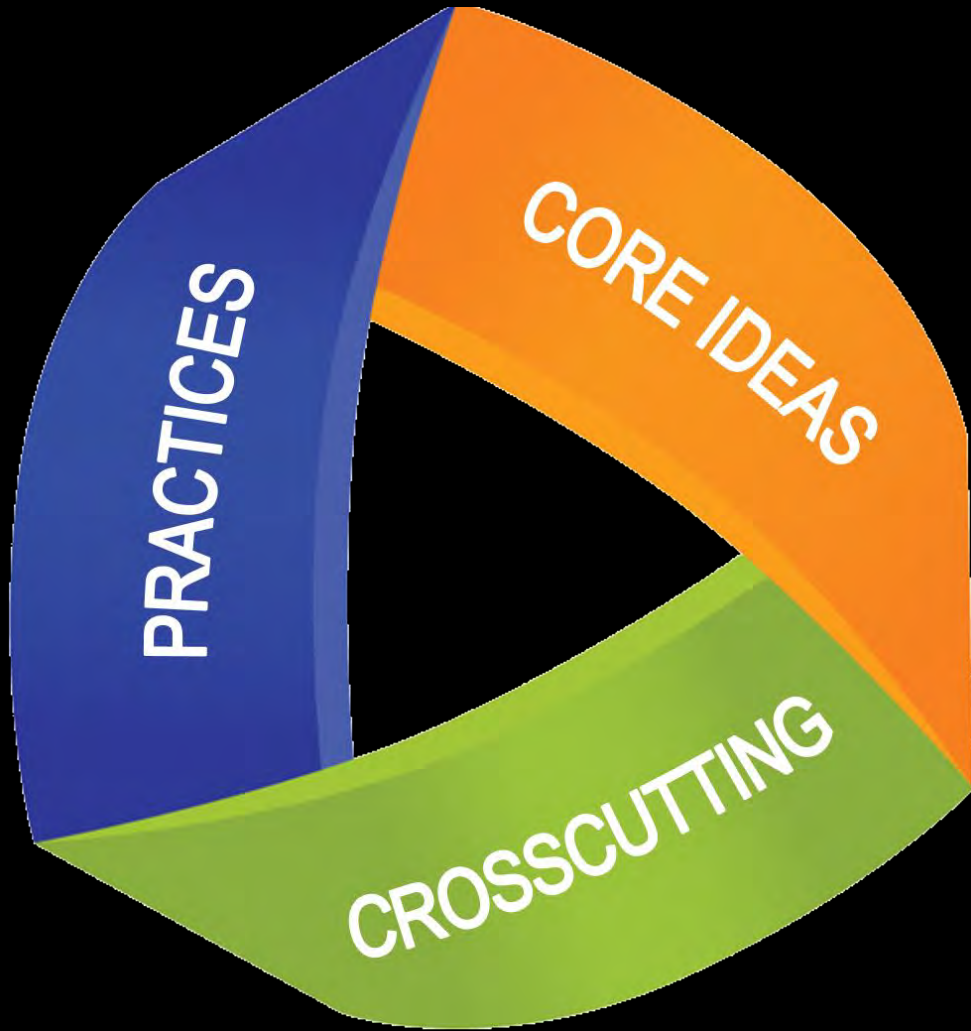
THREE DIMENSIONAL LEARNING

**NEXT GENERATION
SCIENCE STANDARDS (NGSS)**



DO IT

Build something
Design a solution
Job Shadowing
Take something apart
Fail
Try Again

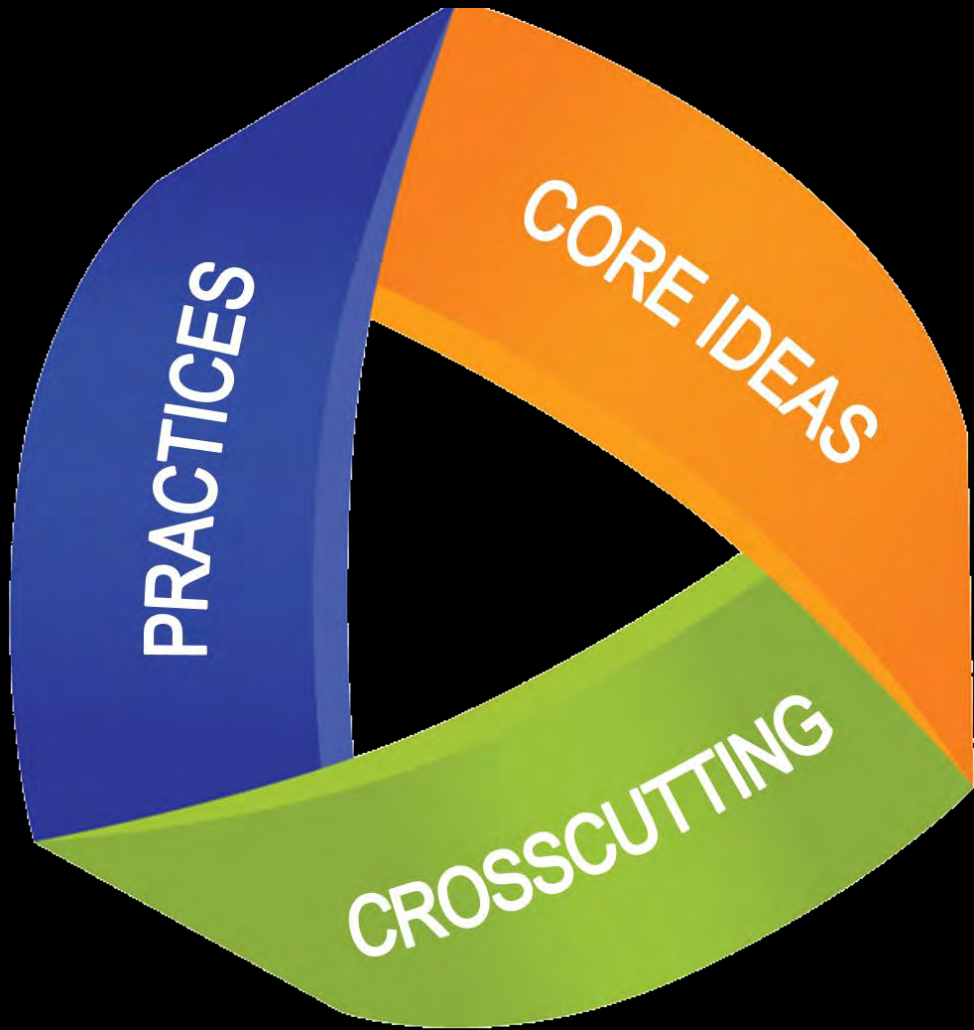


SEE IT

Go on field trips
Learn how things work
Discover
Explore



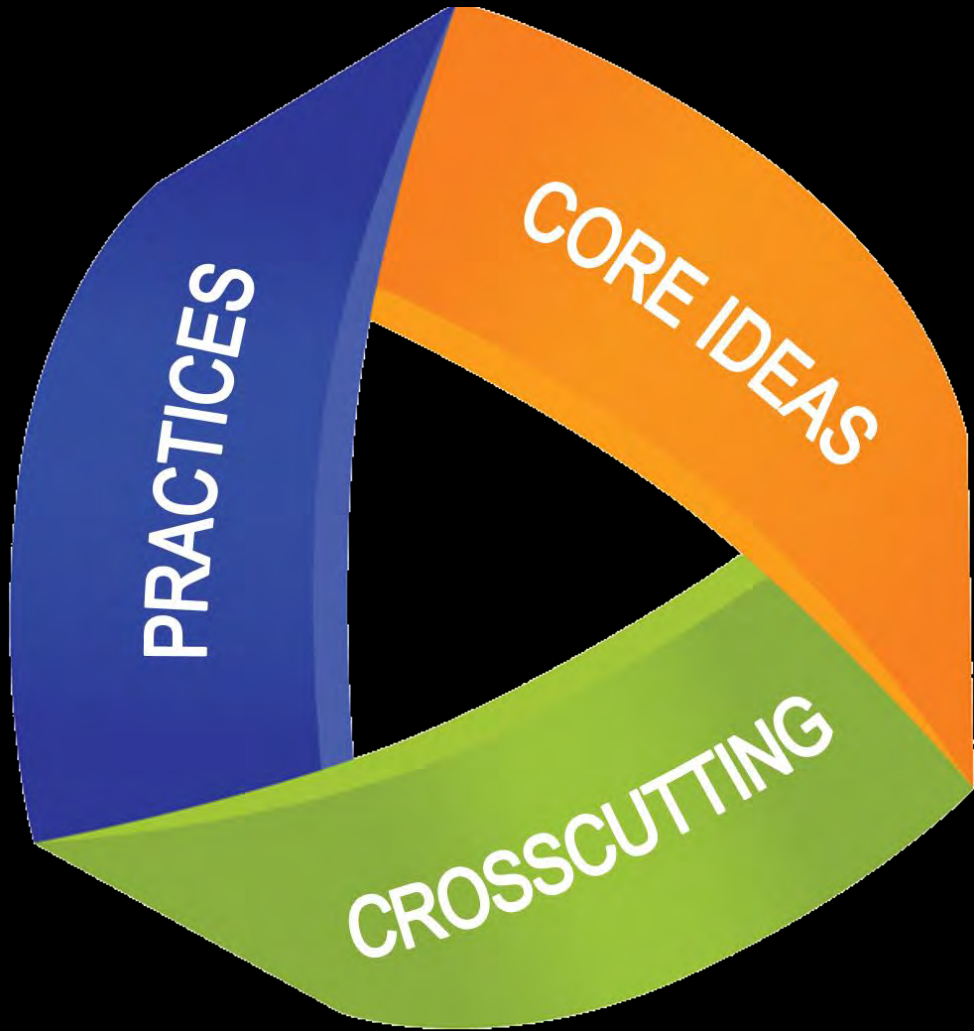
Field Trips and Job Shadowing



TALK IT

Ask Questions:

- What observations do you have?
- What is the problem?
- What can you change/do to help us answer this?
- Do you have evidence/data to support this?
- Can you communicate what is going on?



TALK IT

Ask Questions

Work in groups

Brainstorm

Presentation

Introduce vocabulary

Accelerate

Increase

Decrease

Optimize

Adapt

Lighten

Elevate

Reinforce

Alleviate

Maximize

Eliminate

Stabilize

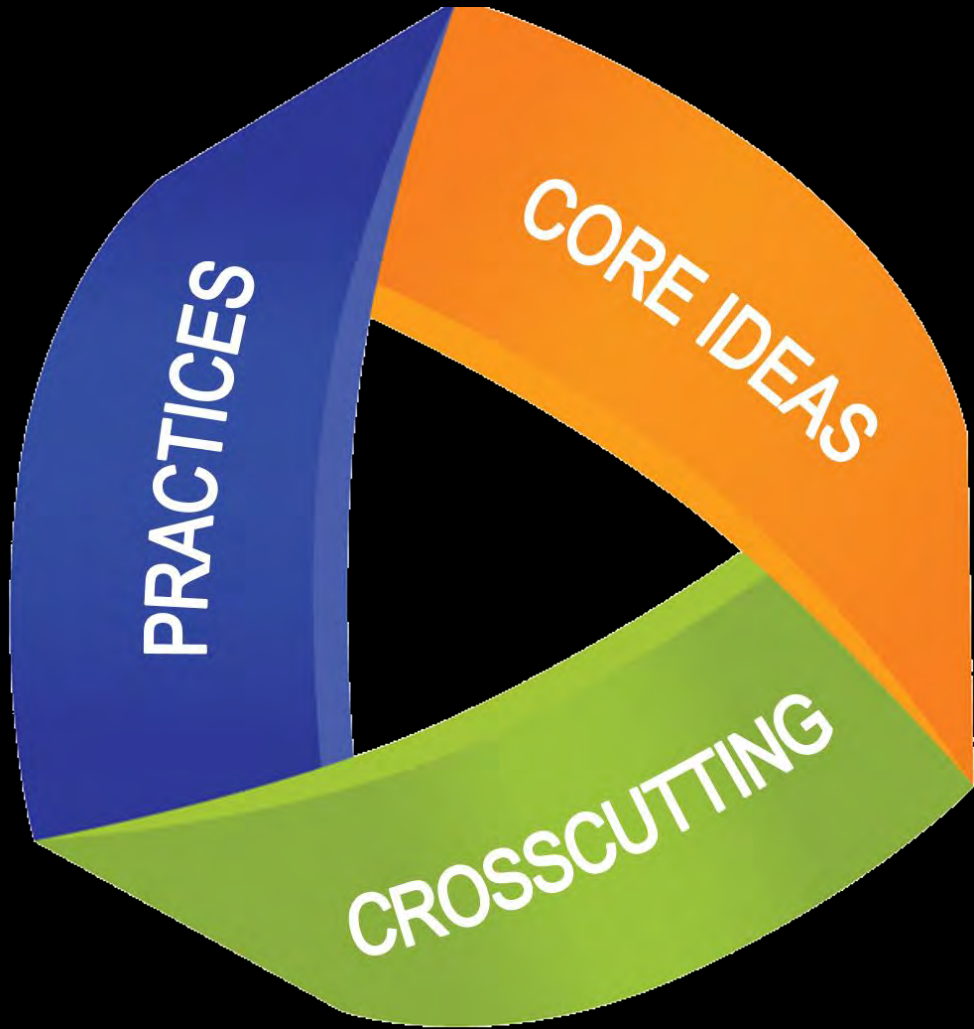
Condense

Minimize

Improve

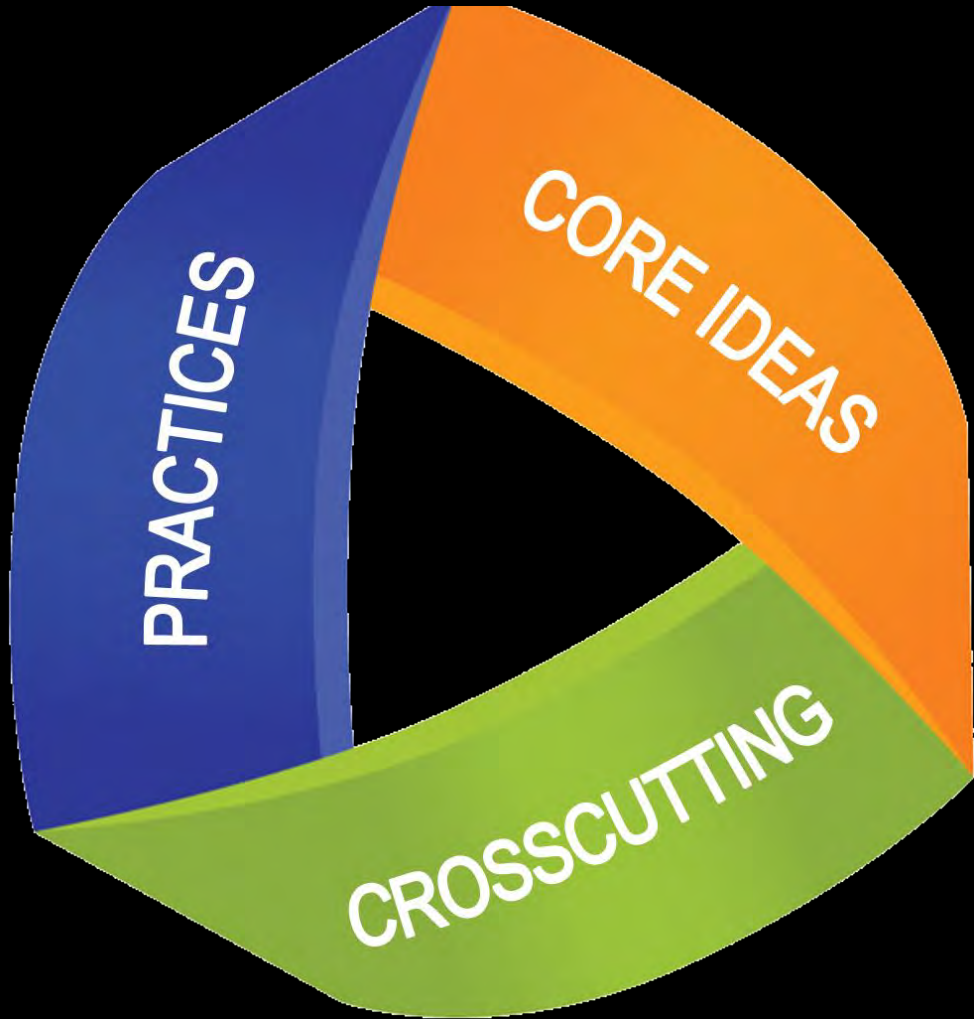
Strengthen

ENGINEERING VERBS



READ IT

Non-fiction
Picture book
Online research



WRITE IT

Make a list of materials

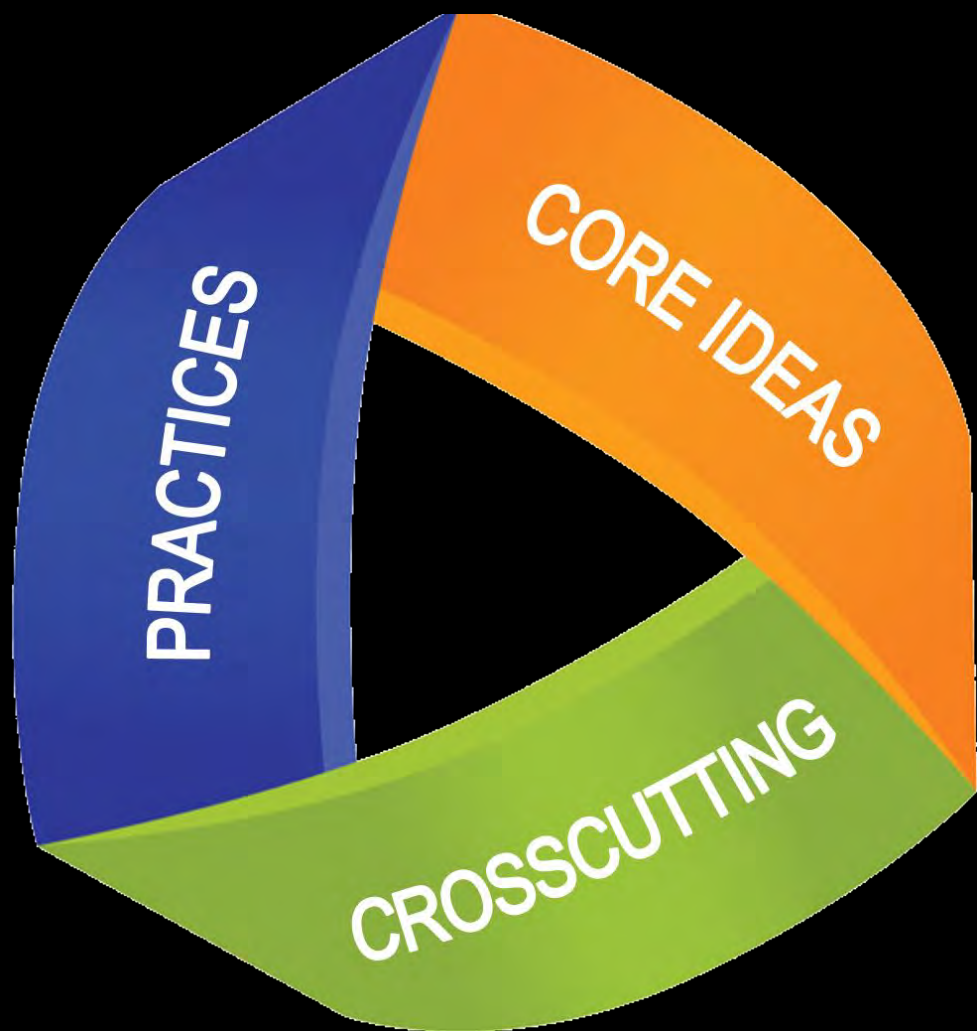
Draw a design

Color a picture

Compose a story or song

Make a video

List the steps that made it
successful

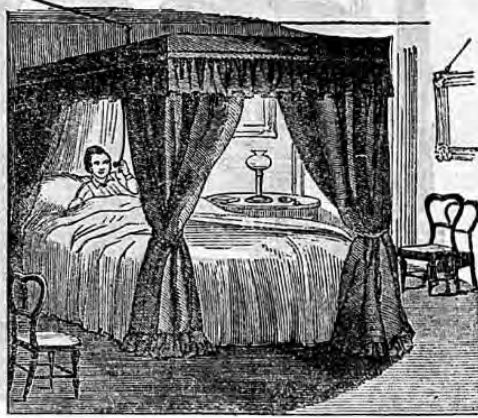


**DO IT
SEE IT
TALK IT
READ IT
WRITE IT**

**DESIGN A
SOLUTION**

WHISPER TUBES & PLASTICS MANUFACTURING

Medical Man's Midnight Friend.



GUTTA PERCHA SPEAKING TUBE.

Testimonials.

From **HENRY ASHTON, Esq., Surgeon.**
Walton, near Preston, Dec. 11th, 1850.

I have had Gutta Percha Tubing carried from my front door to my bedroom, for the transmission of communications from my patients *in the night*. I have it brought to my pillow, and am able with the greatest facility to hold any communication with the messenger in the street, without rising to open the window, and incurring exposure to the night air. It gives me great satisfaction in being able to recommend to my medical brethren, an article so cheap and easy of adoption, which will save them from the injurious effects of being exposed to a current of cold air from an open window the moment they rise from their beds.

From **Messrs. WALL & TROUNCER, SURGEONS, &c.**

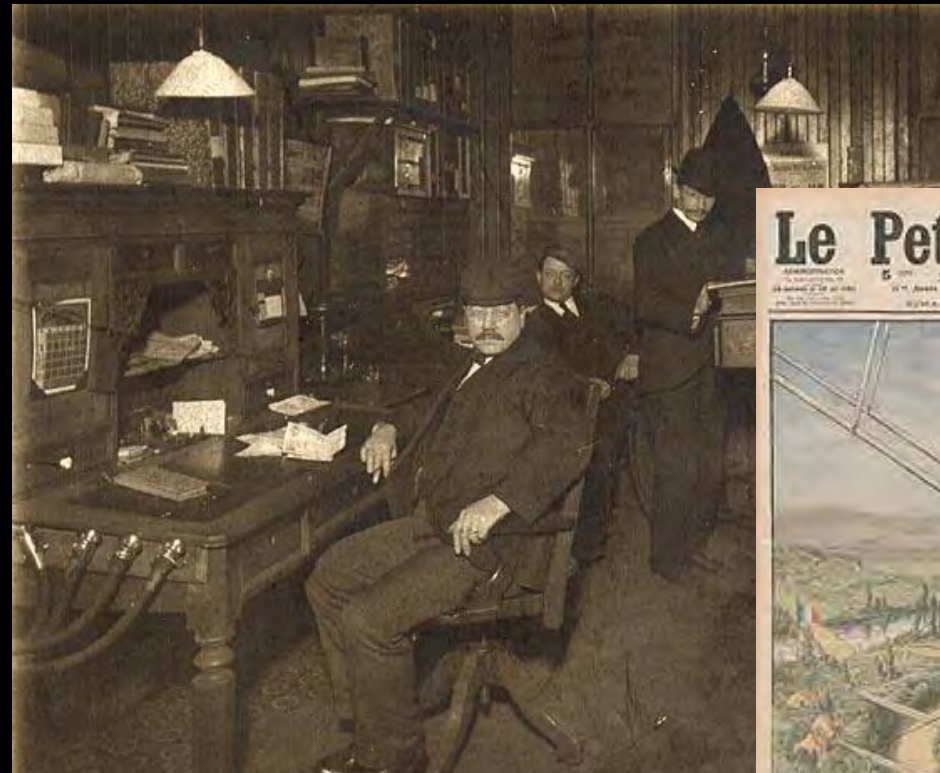
6, Mount-st., Grosvenor Square, Jan. 22, 1851.

We state, with satisfaction, that the Gutta Percha Tubing fitted up by Mr. H. C. Dulley, 18, Wilderness Row, communicating between the street and the bed chamber, answers our expectation as a conductor of sound, and that the necessity of going down stairs, or opening the window to receive messages from our nightly visitors, is thus obviated. It is, therefore, with confidence we recommend all exposed to this inconvenience of our profession to adopt a similar plan.

THE GUTTA PERCHA COMPANY, PATENTEES,

18, WHARF ROAD, CITY ROAD, LONDON.

19th Century Speaking Tubes



READ IT

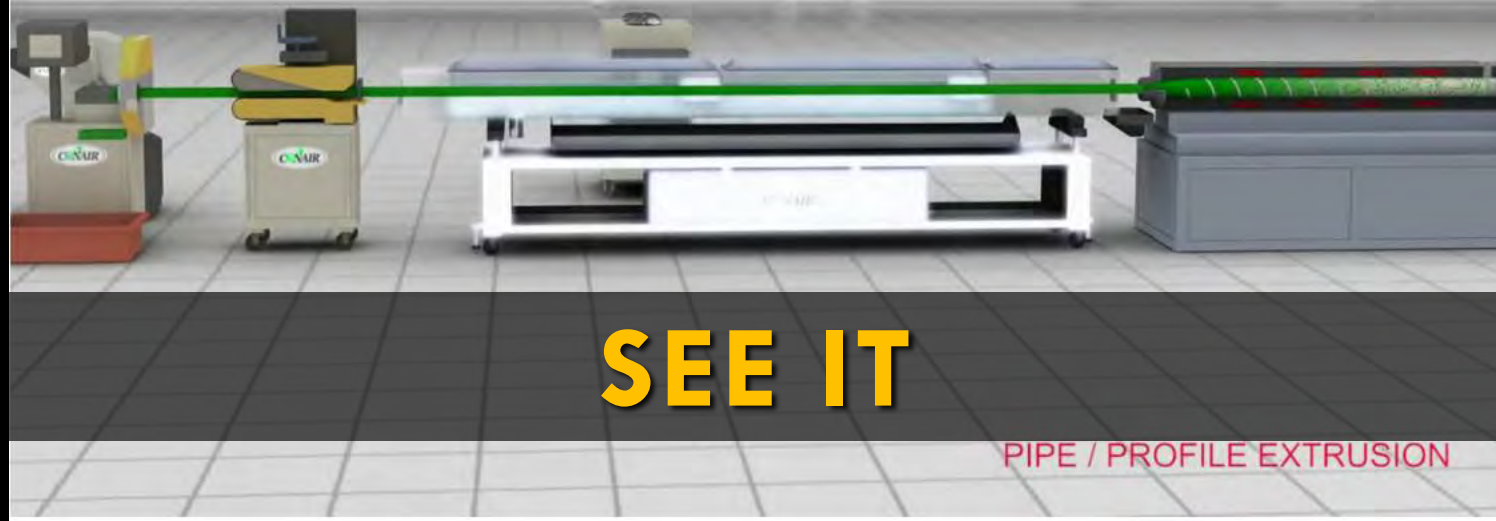


TALK IT



WRITE IT

An overview of Plastic Processes



SEE IT

PIPE / PROFILE EXTRUSION



DO IT

- HISTORY OF SPEAKING TUBES
- PLASTICS MANUFACTURING
- PLASTIC AROUND US – HOW WAS IT MANUFACTURED?
- ENVIRONMENTAL IMPACT OF PLASTICS
- MANUFACTURING WASTE AND REGRINDING
- DISPOSABLE SOCIETY DISCUSSION
- DESIGN & SKETCH A DESIGN IN AREA
- SPACE PLANNING WITH MEASURING TAPES
- CALCULATE LENGTH OF PVC PIPE/# OF ELBOWS
- BUILD DESIGNS FROM STRAWS AND TAPE
- PRESENT DESIGN TO CLASS: WHERE TO INSTALL? WHY? WHAT UNIQUE FEATURES? ISSUES?
- WITH SAFETY GLASSES ON, MEASURE PIPE, PLACE IN VISE, USE HAND HACKSAW TO CUT PVC



A close-up, high-contrast photograph of mechanical components, featuring several interlocking metal gears and two prominent hexagonal bolts. The lighting is warm and directional, creating strong highlights and deep shadows that emphasize the textures and metallic surfaces of the machinery.

COMMUNITY NEED

BRIDGING THE TECHNICAL SKILLS GAP

A close-up photograph of mechanical gears and bolts, with a dark horizontal band across the middle containing white text. The background is a warm, golden-brown color, suggesting a mechanical or industrial setting.

BRIDGING OUR REGION'S TECHNICAL SKILLS GAP

———— The STEAM Initiative at the Phelps Library ————

DATA

A NEW PATHWAY TO SUCCESS

Workforce Paradox: An Interview with WMC Foundation President Jim Morgan

Why Study the Skills Gap in Wisconsin?

WMC Foundation Preside...

Watch later

Share

Tom Still: Forget the skills gap; Wisconsin needs workers, skilled or otherwise



"The skills gap is real in Wisconsin, and everything we are hearing is that they struggle filling jobs." – Jim Morgan, WMC Foundation President

ISSIE LAPOWSKY BUSINESS 07.26.17 06:41 PM

THE TECH SKILLS GAP WILL TEST FOXCONN'S NEW WISCONSIN FACTORY

POLICY & RESEARCH »



TALENT

Let's Get Real about the Skills Gap and Start Solving It

Wisconsin lawmakers look to close state's job-skills gap with multi-pronged workforce-training measure

S U C C E S S

IN THE NEW ECONOMY

HOW PROSPECTIVE COLLEGE STUDENTS CAN GAIN A COMPETITIVE ADVANTAGE

1 · 2 · 7

1 · 2 · 7

Master's +

Bachelor's

Technical Skills

1 · 2 · 7

Master's +

Bachelor's

Technical Skills

30% (4+ YEARS OF COLLEGE)

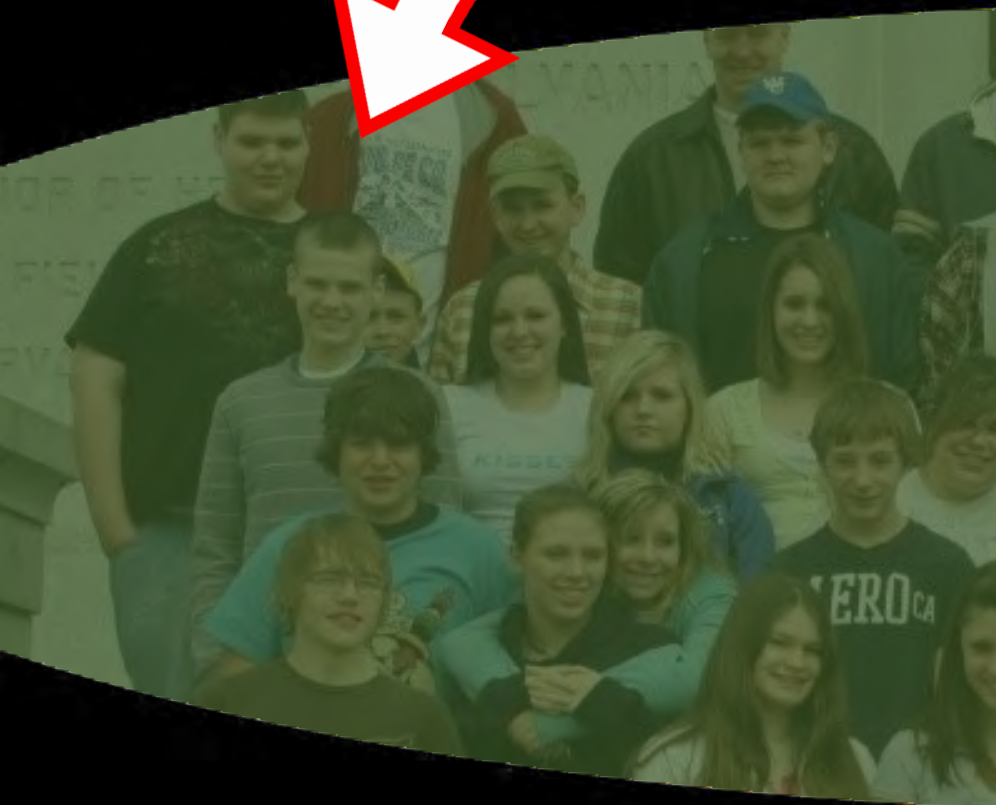
60%

<https://dpi.wi.gov/>



100 STUDENTS

40



**WORKFORCE
MILITARY
BASEMENT MAN CAVE**

30



HIRED INTO THEIR FIELD OF STUDY

30!





EXECUTIVE SUMMARY

WISCONSIN WORKFORCE COMPETITIVENESS EVALUATION

FUTURE WISCONSIN PROJECT



es economy is currently approaching a
f continuous private sector job expan-
c product growth has accelerated and
g output and worker productivity have
economic devastation of the great
009.

mic success is not evenly felt across
sin is enjoying strong economic perfor-
ally low unemployment, a diverse eco-
g a robust manufacturing sector and
ism. But underlying all the success is
lack of enough appropriately-skilled
aders understand that the tight labor
ce skill gaps will stifle future economic
issues are addressed in an aggres-
dressed soon.

orkforce headwinds are an intricate
demographics, shifting employer ex-
ing automation and a growing policy
and training effectiveness. Demo-
ate no relief in sight for very tight labor
ne rising adoption of automation and
is not expected to decrease overall

enged to identify the emerging skills
ful employment, to identify the re-
competitive lifelong talent pipeline,

and to align and focus the efforts of many, often siloed,
stakeholders. To compete for jobs and investment, having
the needed quantity of skilled talent has emerged as the

- Lack of projected working-age population growth across the state
- Skill gaps – especially technical skills, with some soft skills issues among younger workers
- Pockets of disadvantaged adults not participating fully in the workforce, and achievement gaps in schools
- Little awareness of in-state career options among K-12 school students

Although Wisconsin's economic base is reasonably strong across the state and unemployment is low throughout, urban and rural areas experience different economic and workforce challenges. Rural and small-town Wisconsin has greater difficulty attracting and retaining talent. It also faces infrastructure issues such as broadband internet access and a lack of public transportation. Meanwhile, some urban neighborhoods have large numbers of

This report summarizes ways to improve
workforce competitiveness in six areas:

Attract and Retain Talent

- Increase state funding for talent attraction and retention initiatives to make Wisconsin a more competitive national leader in securing and retaining talent in the workforce.
- Craft incentive programs to attract various types of



**ECONOMIC
LEADERSHIP**

*Prepared for WMC Foundation by Economic Leadership, LLC
February 2019*

*Written by Greg Payne and Ted Abernathy
Economic Leadership, LLC*

EXECUTIVE SUMMARY

WISCONSIN WORKFORCE COMPETITIVENESS EVALUATION

FUTURE WISCONSIN PROJECT

WMC
FOUNDATION

Little awareness of in-state career options among K-12 students

- across the state
- Skill gaps – especially technical and soft skills issues among young adults
- Pockets of disadvantaged adults not fully in the workforce, and achievement gaps in schools
- Little awareness of in-state career options among K-12 school students

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February 2019

Written by Greg Payne and Ted Abernathy
Economic Leadership, LLC

and to align and focus the efforts of many, often siloed, stakeholders. To compete for jobs and investment, having the needed quantity of skilled talent has emerged as the

BE THE VOICE OF OPPORTUNITY

so that students, parents, teachers and counselors are aware
of the great business and career opportunities available
in each region of the state.



*Prepared for WMC Foundation by Economic Leadership, LLC
February 2019*

*Written by Greg Payne and Ted Abernathy
Economic Leadership, LLC*



**Maybe
it's time
we rethink
things.**



THE SKILLS GAP IN U.S. MANUFACTURING: 2015 & BEYOND

Manufacturing Institute

Figure 1: Skills gap in the U.S. manufacturing industry, 2015-2025

The skills gap is widening

Over the next decade nearly 3 ½ million manufacturing jobs will likely be needed and



The implications are significant

Every job in manufacturing creates another 2.5 new jobs in local goods and services.

For every \$1 invested in manufacturing, another \$1.37 in additional value is created in other sectors.



Source: Deloitte analysis based on data from U.S. Bureau of Labor Statistics and Gallup Survey.

By 2025 the skills gap is expected to grow to **2 million**

In 2011, **600K** jobs were unfilled due to the skills gap



HEADING TO
SCHOOL
60 COLLEGE
LOCATIONS

GW LISK Co. Inc

NOW HIRING

Production Openings

- CNC Machinists
- Assembly/Operators
- Skilled Trades

Apply Online Today
www.gwlisk.com/lisk-careers

**APPRENTICESHIPS
ARE
HIGHER
EDUCATION**



Job Shadowing

THE TRADES

The Trades

Appliance Techs

Safeguard Progress

Appliance techs install, diagnose and repair the large appliances that make our lives a little simpler. Want to provide a convenient hand to those around you?

EXPLORE APPLIANCE TECHS

Carpenters

Build the World

Carpenters aren't just the shapers of wood, steel and plaster-they knit society together. Want to play a part in bringing people together in inspiring spaces?

EXPLORE CARPENTERS

Electricians

Connect the World

Electricians, from the industrial age to the modern day, have illuminated the world around us. Want to power up the spaces surrounding you?

EXPLORE ELECTRICIANS



TRADE SKILLS ASSESSMENT

There are many trades and different specializations to choose from depending on your interests and strengths. Most trades require problem-solving skills and technical knowledge, but there are several other factors to consider when choosing the best fit for you. This brief assessment will help us understand your interests and strengths, while helping you get one step closer to finding the right trades and programs.

START

