

AFTER THE SCHOOL BELL RINGS:

LIBRARIES
ARE
EDUCATION!

Leah Hamilton

Phelps Library
& STEAM Lab Makerspace
Phelps, New York





Transforming Our Image, Building Our Brand

The Education Advantage

Valerie J. Gross



Valerie Gross

https://valeriegross.com/Home_Page.html

The Phelps Library

- Association Library
- Chartered to serve 7,100
- 1 FT Director, 4 PT staff
- Programming Budget of \$2,000
- STEAM Lab Makerspace
- Volunteer instructors & staff
- 4600 sq. ft. space





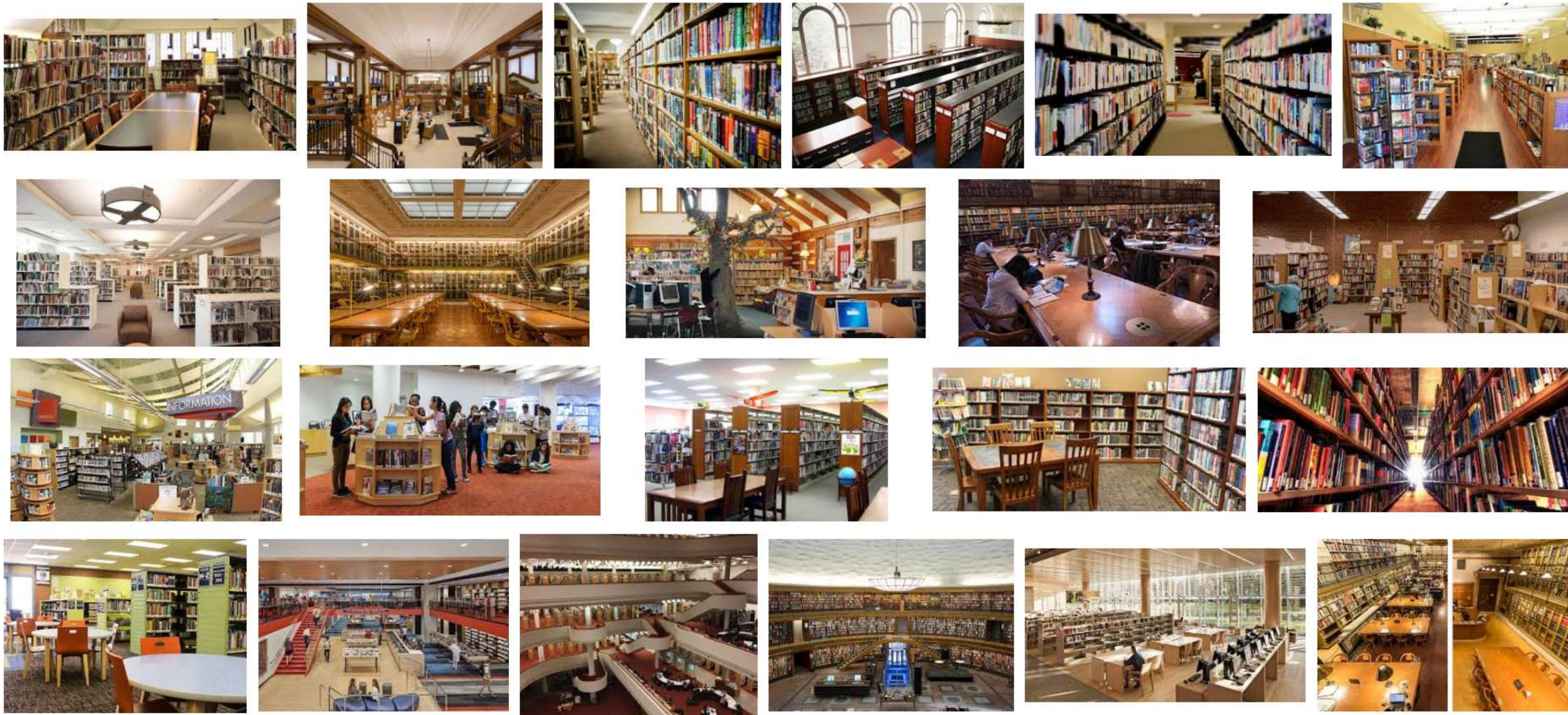
Stream Monitoring



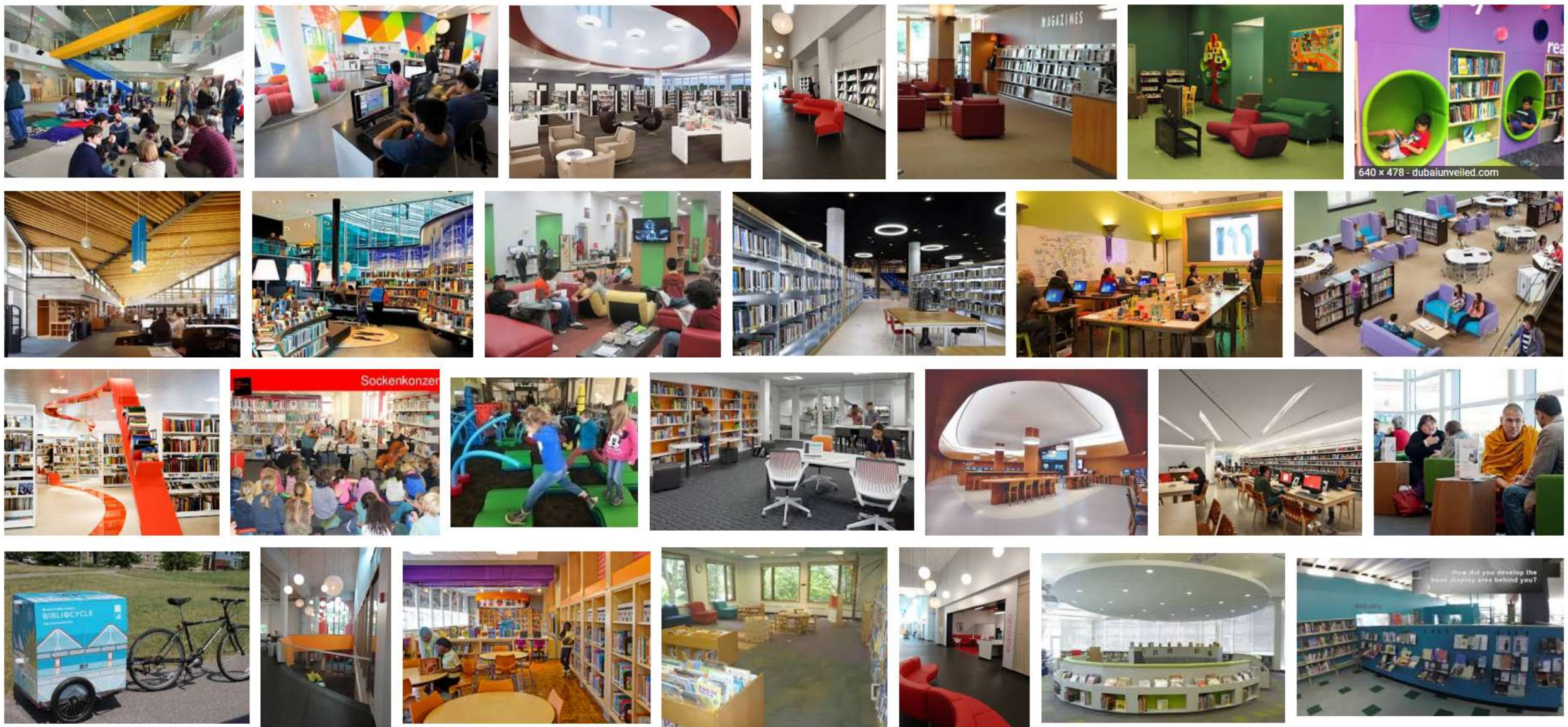


CITIZEN SCIENTIST

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



"PUBLIC LIBRARY"



"INNOVATIVE
PUBLIC LIBRARY"

The background image shows a workshop or classroom. In the foreground, there are several black plastic stools and a wooden table. In the background, there is a sewing machine on a table, a mannequin, and a red ladder. The room has a wooden floor and a window on the right side.

STEAM INITIATIVE

BRIDGING THE TECHNICAL SKILLS GAP

STEAM Lab Makerspace

STEM Explorers

STEAM Camps

FLX Maker Fest

STEAM Consultation

STEAM Scholarship





STEAM Lab Makerspace – Dirty Technology



STEAM Lab Makerspace – Clean Technology



STEM Explorers



Augmented Reality Sandbox





phelpslibrary.org/flxmf-home

THANK YOU TO OUR 2018 FLX MAKERS!

Doppler-on-Wheels (DOW)
Mobile Weather Radar
with Hobart William Smith

GW Lisk & The SpaceX Program

Rocket Construction
How-Tos with
Upstate Research Rocketry Group

FIRST Robotics Team Tan[x] 3003

Empire Resource Recycling
Initiatives

Painting with Light with
Rochester Mini Maker Faire's
Dan Schneiderman

Learn to Solder
Electronic Components
with Dan Wheeler

3-D Printing in Manufacturing
with Harbec, Inc.

Create with Thermoplastic
with Interlock Rochester

Magnetic Slime

Build a Cigar Box Guitar

Sour Science with
the Clifton Springs Library.

3D Printing and Scanning
with the Phelps Library
& STEAM Lab Makerspace

Design and Manufacturing
with Nick Hargather

Crocheting Classes
with Yarnthusiast

Roc City Laser's
Glowforge Laser Cutting

Healthy Science with
Clifton Springs YMCA

Felted Bookmarks
with Feathertree Felt

Exploring the Microscopic World
with Infinite Scope

STEM Challenges with
Pioneer Library System

Blockprinting

Music and Math with
CHORDTEACHER

Patriot Energy - Ambit
on starting a successful,
profitable small business

Engineering Paper
Windows Stars with
Victor Farmington Library

Jewelry Making
with Seamist Designs

LIBRARIES
ARE
EDUCATION



A photograph of four students in school uniforms, seen from behind, standing in front of a chalkboard. They are all reaching up with their right hands to draw on the board. The student on the far left has drawn a crown. The second student from the left has drawn a cat face. The third student has drawn bunny ears. The student on the far right has drawn a butterfly. The text "WHY 'EDUCATION'?" is overlaid in the center in a white, hand-drawn font. Below it, the text "DEFINING OUR PURPOSE" is overlaid in a white, sans-serif font, flanked by two horizontal lines.

WHY "EDUCATION"?

DEFINING OUR PURPOSE

A background image showing the backs of several students in a classroom, wearing white shirts and blue skirts, with their arms raised. The image is overlaid with horizontal semi-transparent bars.

Equity of Funding & Training

Partnership Development

Library Marketing

Wildly Popular Classes

Workforce & Economic Development

Student Success & Empowerment

The background of the image is a close-up, slightly blurred view of an open book. The pages are white with black text, and the book is bound in a dark cover. The lighting is warm, creating a soft glow around the edges of the pages. The text is centered on the right page of the open book.

**“EDUCATION IS THE MOST
POWERFUL WEAPON WHICH YOU
CAN USE TO CHANGE THE WORLD.”**

~ Nelson Mandela ~



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2

Bachelor's

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2

Master's+

•

7

Technical Skills

36%

(

4+ YEARS
OF HIGHER ED

)



82.7%





17.3%



WORKFORCE
MILITARY
BASEMENT MAN CAVE



47%



WHERE DO WE GO
FROM HERE?



KNOW YOUR

WHY



New Career Paths

Problem-Solving

Empowerment

Practice for Life

Inspiration

Build Confidence

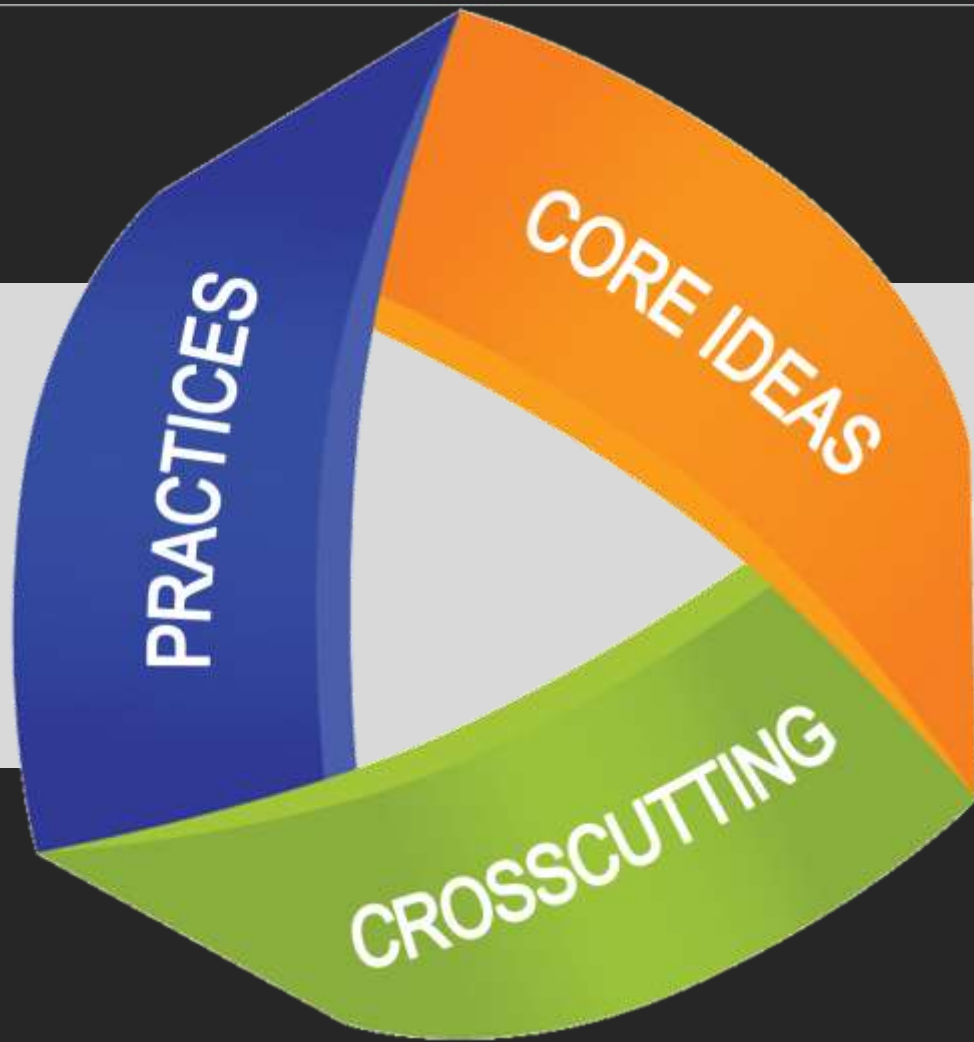




The background of the image is a close-up of an artist's palette and a row of paint containers. The top portion shows a palette with various colors of paint, including red, orange, yellow, and blue, some of which are smeared and mixed. Below the palette is a row of several rectangular paint containers, each filled with a different color of paint, such as green, dark blue, brown, purple, and light blue. The overall image has a textured, artistic feel.

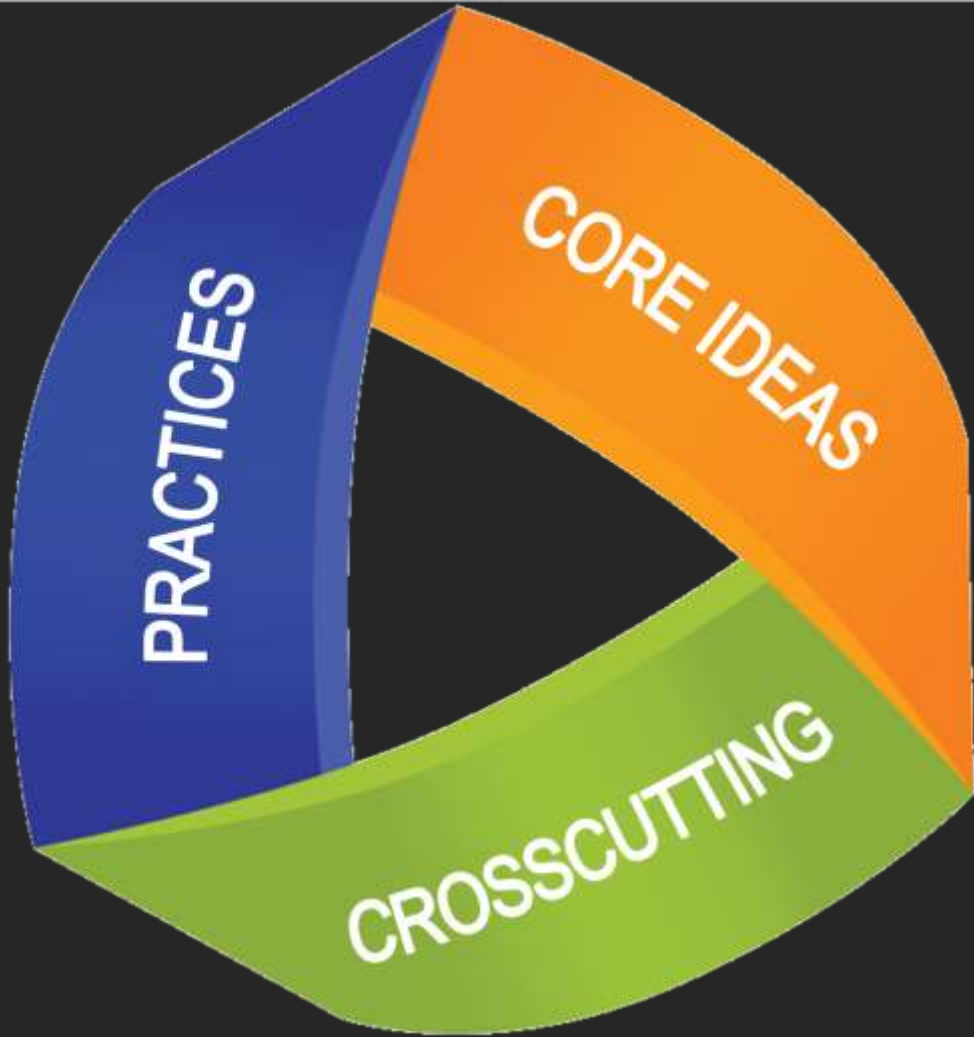
PROJECTS

MAKING IT COME TO LIFE



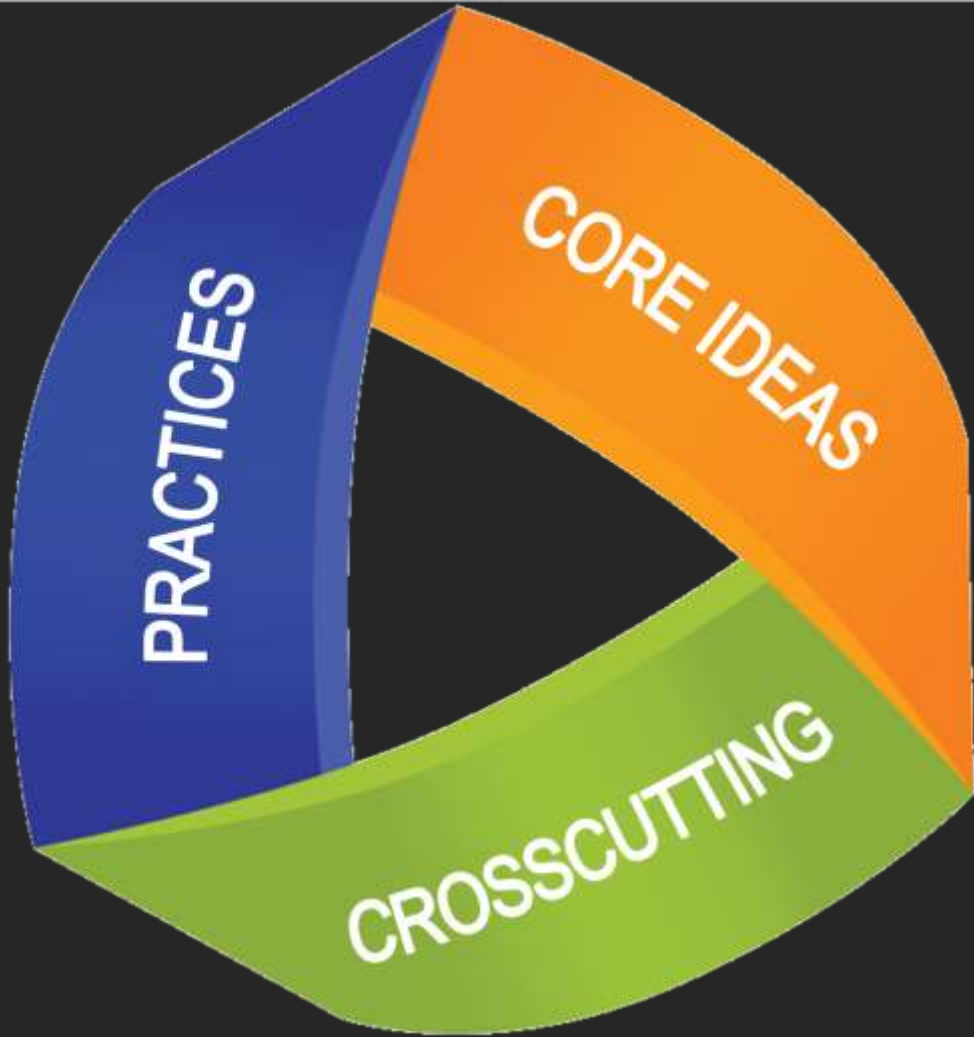
THREE DIMENSIONAL LEARNING

NEXT GENERATION
SCIENCE STANDARDS (NGSS)



DO IT

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



SEE IT

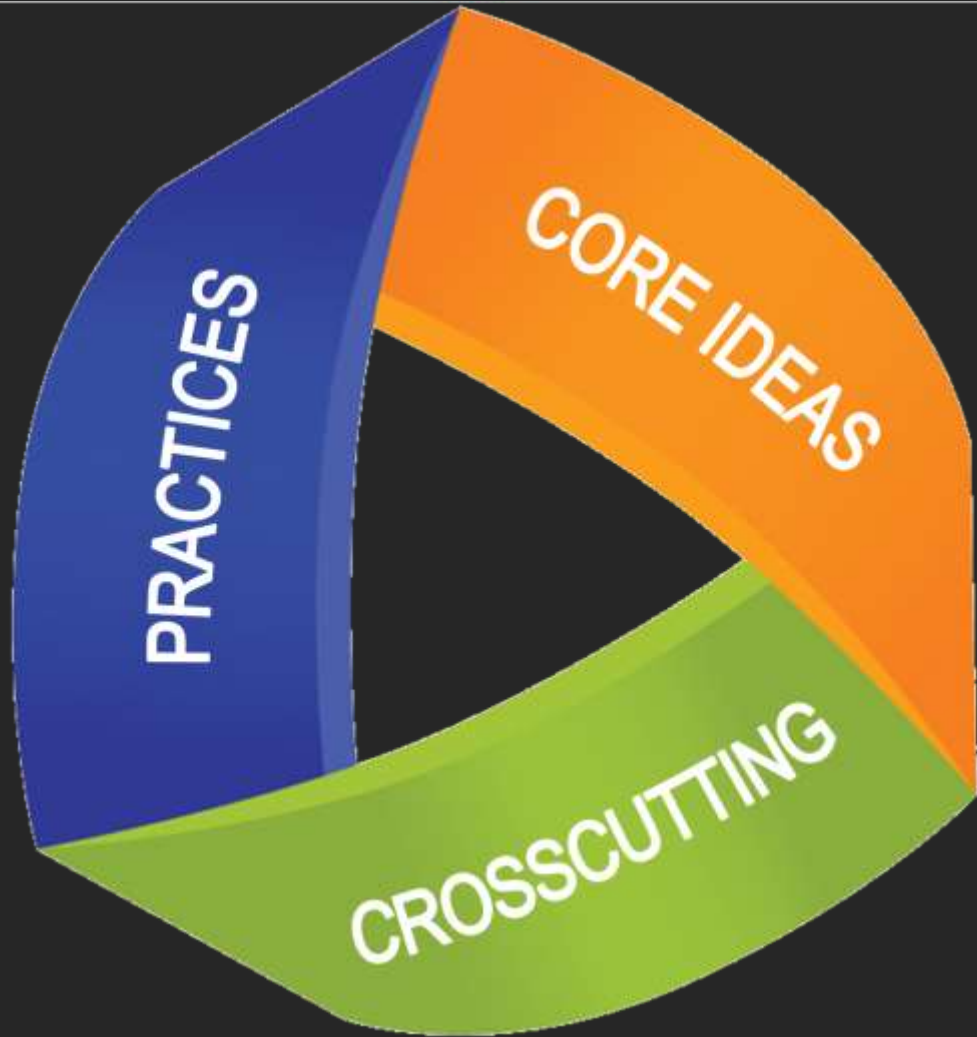
Go on field trips
Learn how things work
Discover
Explore



Water Jet Cutter



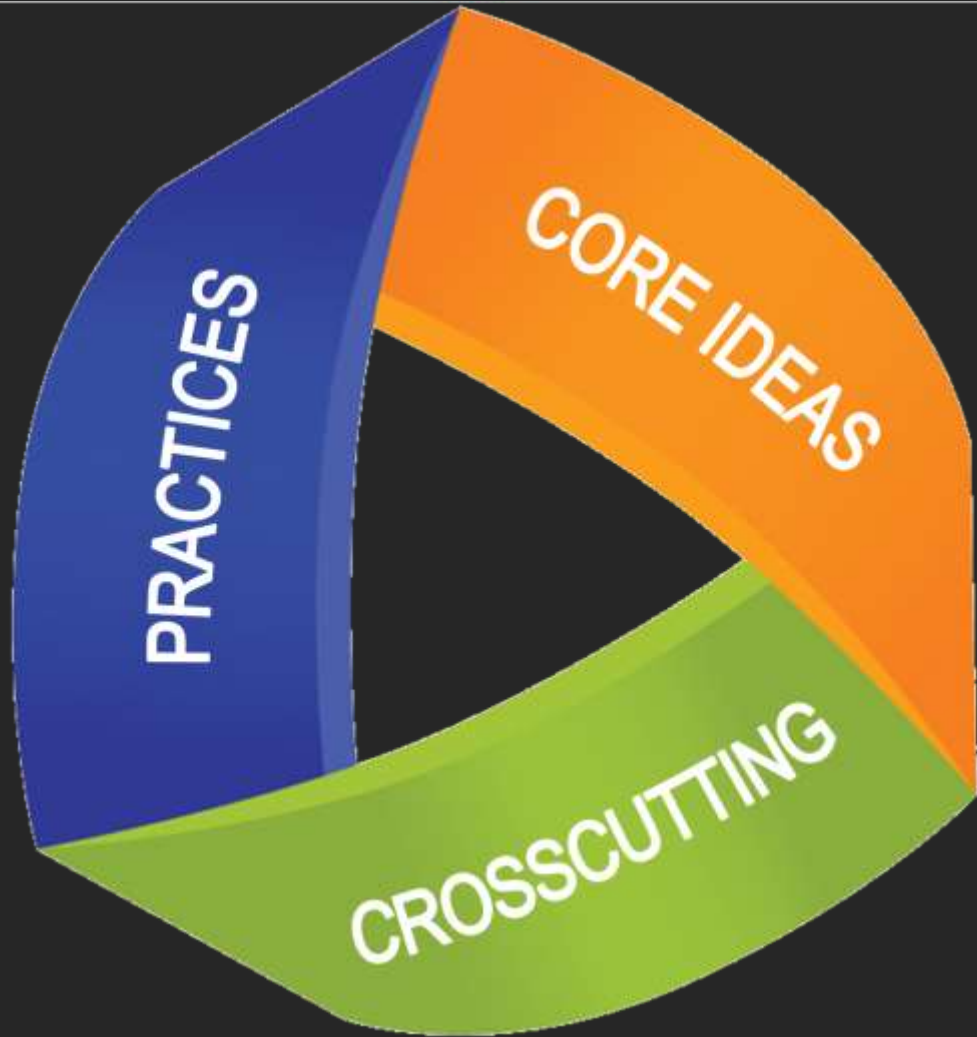
Field Trips and Job Shadowing



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

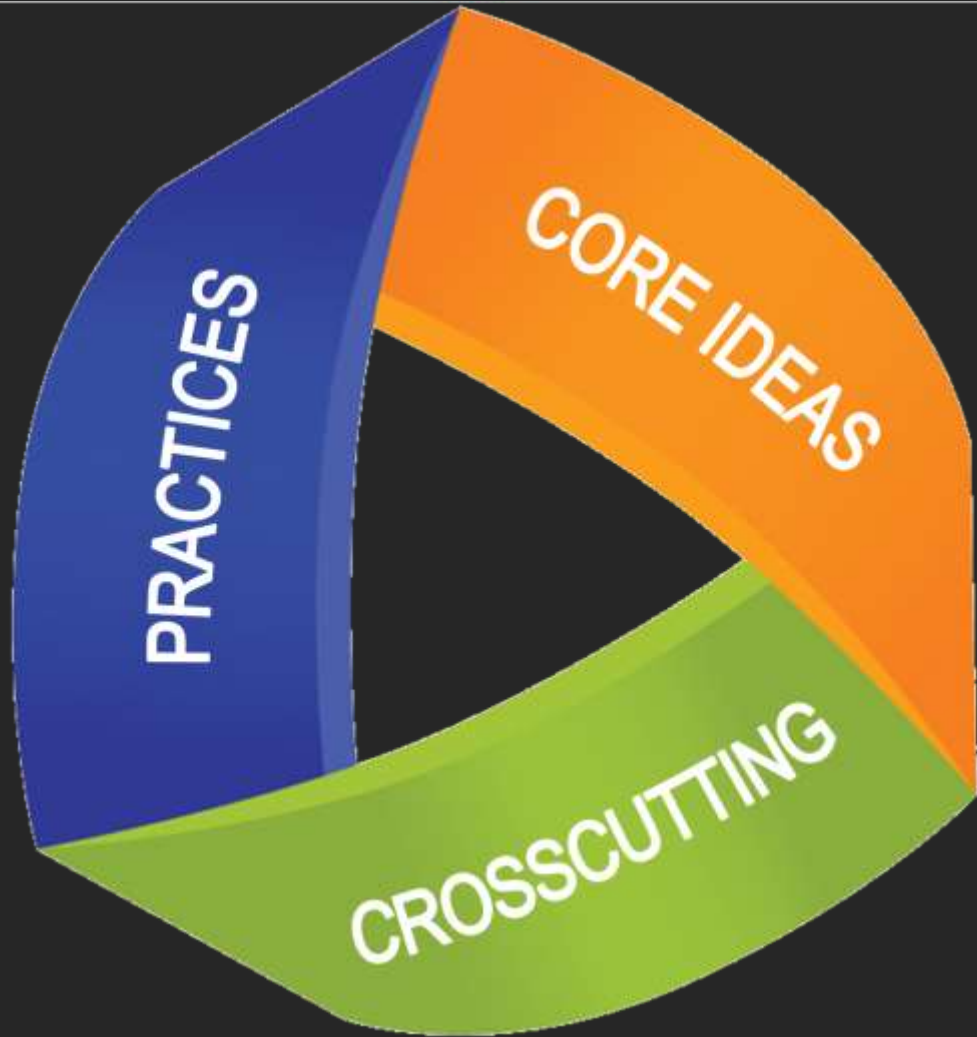
Improve

Strengthen

ENGINEERING VERBS

Using something in the correct way

APPLICATION

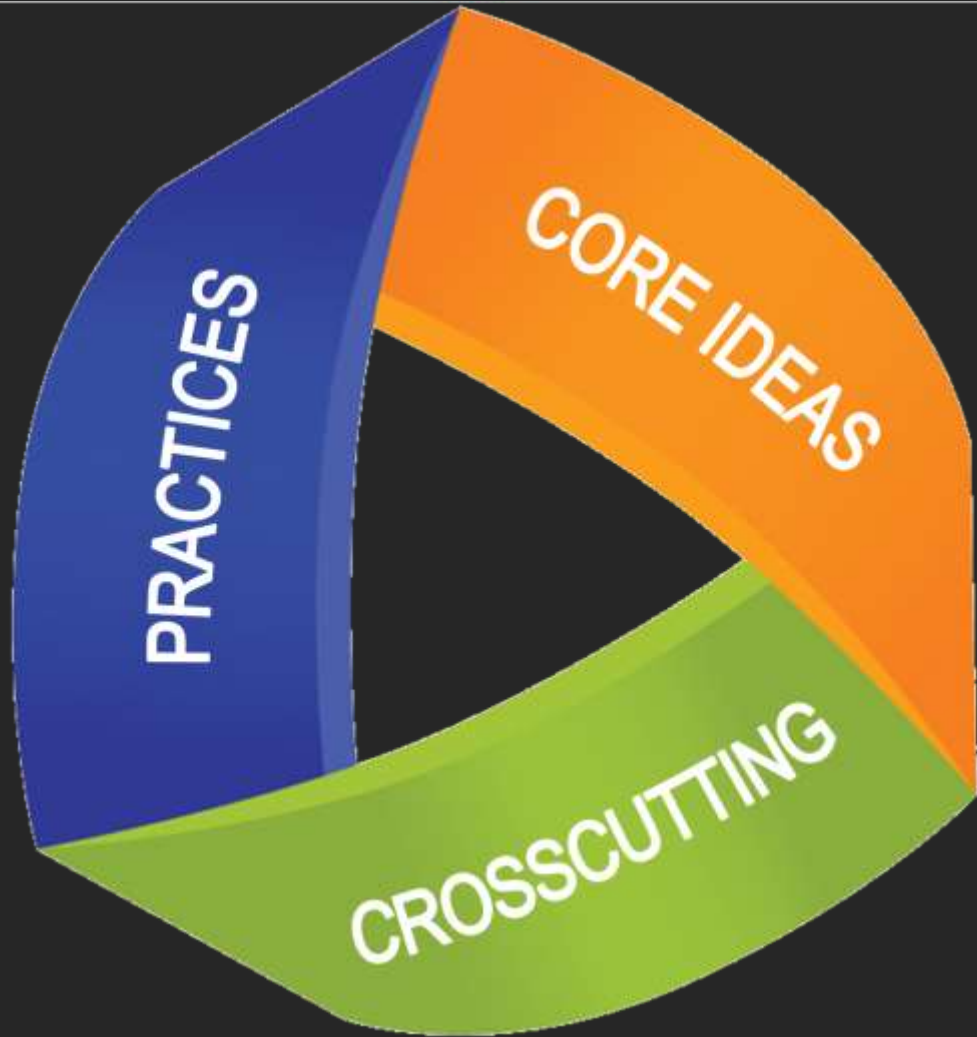


READ IT

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

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

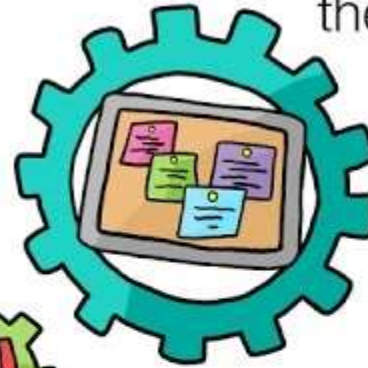
and evaluate your prototype

ITERATE

to improve your prototype

COMMUNICATE

your solution





STEAM Camps



CORSE WOOL

FINE WOOL

ALPACA

CASHMERE

SILK

LINEN

COTTON

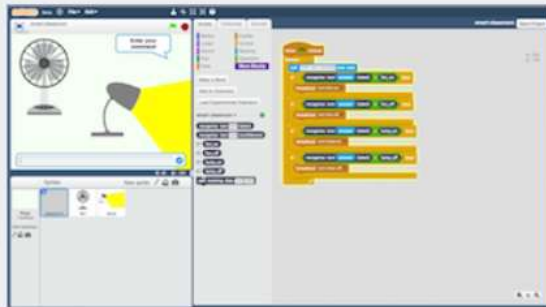
POLYESTER

machinelearningforkids.co.uk

Smart classroom

Create a smart assistant in Scratch that lets you control virtual devices.

Teach a computer to recognise the meaning of your commands



Difficulty: Beginner

Recognising: **text**

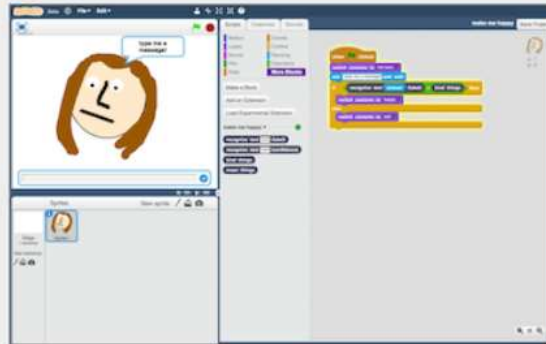
Tags: digital assistants, supervised learning

[Download](#)

Make me happy

Create a character in Scratch that smiles if you say nice things to it and cries if you say mean things to it.

Teach a computer to recognise compliments and insults



Difficulty: Beginner

Recognising: **text**

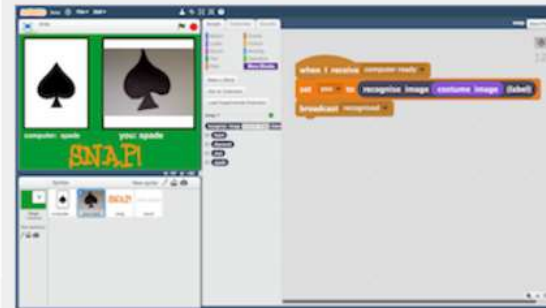
Tags: sentiment analysis, supervised learning

[Download](#)

Snap!

Make a card game in Scratch that learns to recognise pictures of your card.

Teach a computer to recognise what icons look like



Difficulty: Beginner

Recognising: **images**

Tags: image classification, supervised learning

[Download](#)

Mailman Max

Make a postal sorting office in Scratch that can recognise handwritten postcodes on envelopes.

Teach a computer to recognise handwriting



Difficulty: Beginner

Recognising: **images**

Tags: optical character recognition, handwriting recognition, image classification, supervised learning

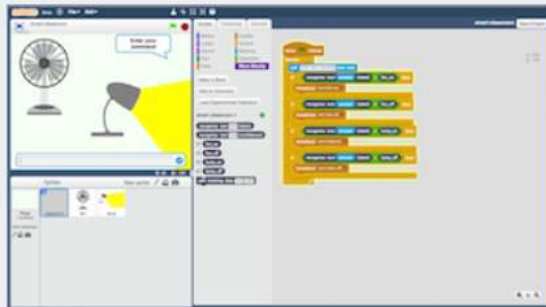
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machinelearningforkids.co.uk

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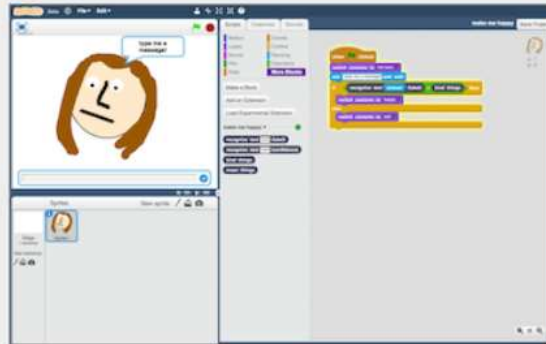
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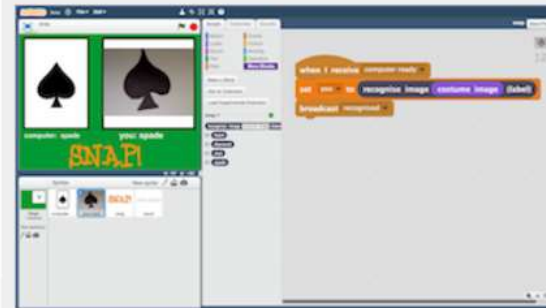
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Ages


4 - 7 | 8 - 12 | 12 - 14 | 14 - 18

Category



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Narrow Results



Curriculum Type

- ☒ Activity
- ☐ Lesson
- ☐ Curricular Unit
- ☐ Sprinkle
- ☐ Maker Challenge

What's the difference between lessons, activities, units, sprinkles, and maker challenges?

Grade Level

Grades K - 12

Subject Area

Engineering Category

- ☐ Relating science and/or math concepts to engineering
- ☐ Partial design
- ☐ Full design

Time Required

0 to 1200+ minutes

clear all filters



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Curriculum Planning



Introduce a different way of thinking to your classroom

- › **Planning an NGSS Curriculum**
- › **Designing Units & Lessons**
- › **Selecting Materials**
- › **Conducting Assessments**

Know Your **WHY**

Why connect with the maker community?

"Through working with the community maker space, we have been able to bring new ideas and skills to our school.

We've been able to transfer the expertise of the many skilled makers who work and play there into our school. It has also increased our confidence as makers.


As we've become more confident makers, our students and colleagues have become more engaged learners. They've taken more risks and stepped outside their comfort zones with us. We look forward to sharing everything we've learned with the community at large."

-Carrie Speranza & Jennifer Jacobson

createmakelearn.blogspot.com/



TIME & TALENT



MAKING THIS FIT INTO AN ALREADY BUSY DAY

Parents

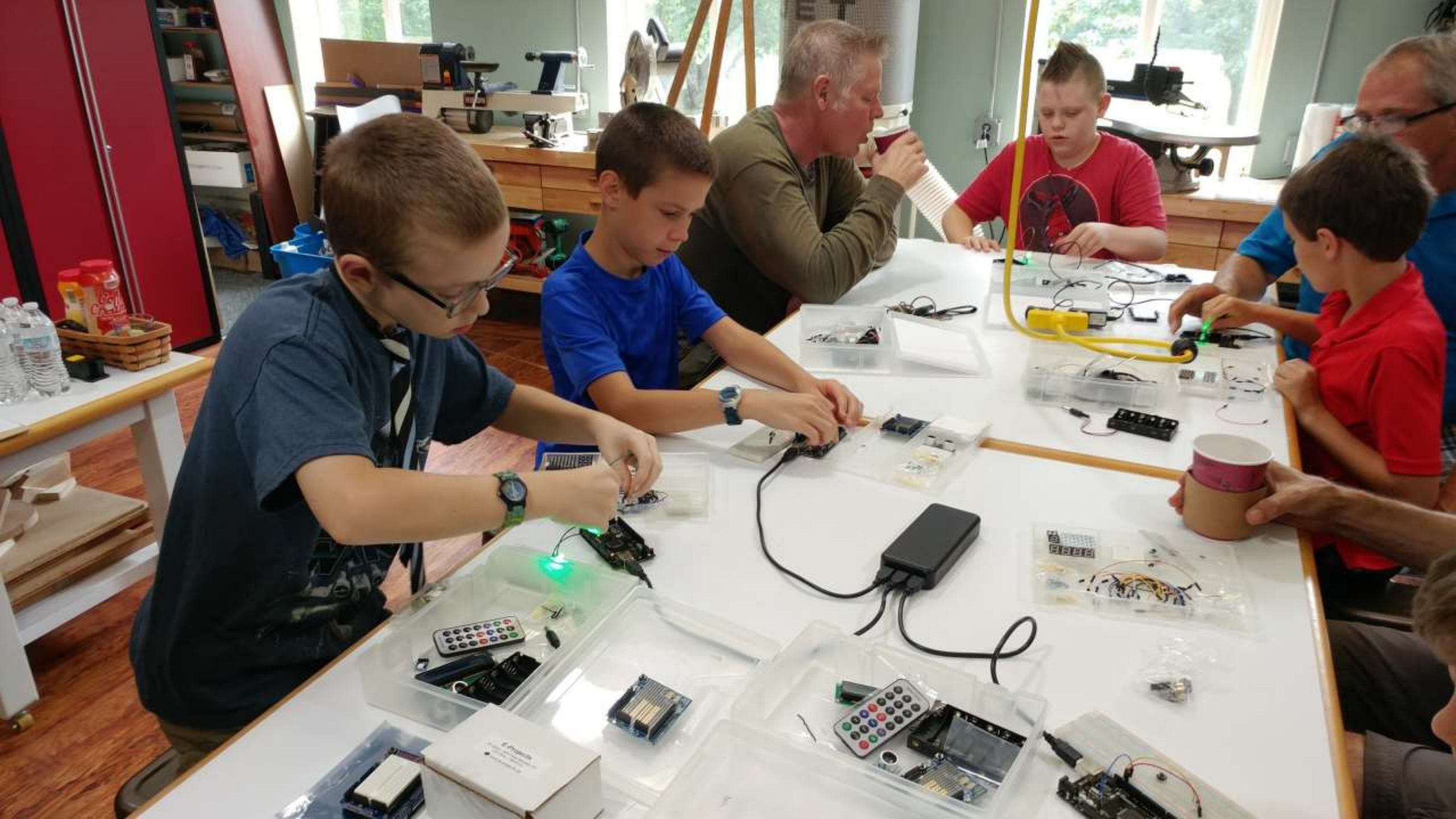
Maker Community

Municipalities

Local Industry Leaders

Schools







Regions experiencing most difficulty filling jobs



STEM jobs hardest to fill currently, and projected to have shortages over the next 5-10 years



Bridging the STEM Skills Gap: Employer/Educator Collaboration in New York

Issued in 2017 by The
Public Policy Institute of
New York State

Regions experiencing most difficulty filling jobs



STEM jobs hardest to fill currently, and projected to have shortages over the next 5-10 years



Greatest barriers:
Lack of Skilled
Workers
Failed Drug Tests

Regions experiencing most difficulty filling jobs



STEM jobs hardest to fill currently, and projected to have shortages over the next 5-10 years



Educational Partnerships:

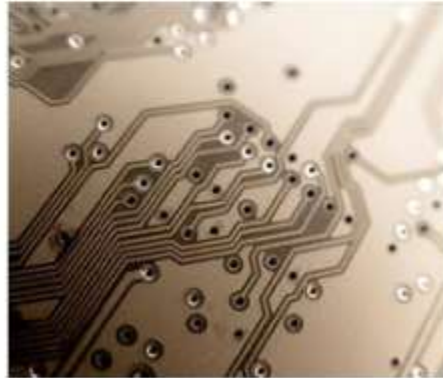
Recruiting Efforts

Enhance their reputation

Have input into
educational policies
and programs



Finger Lakes **A**dvanced **M**anufacturers' **E**nterprise
Building Minds that Make It





AGGREGATE CLUSTER - MANUFACTURING

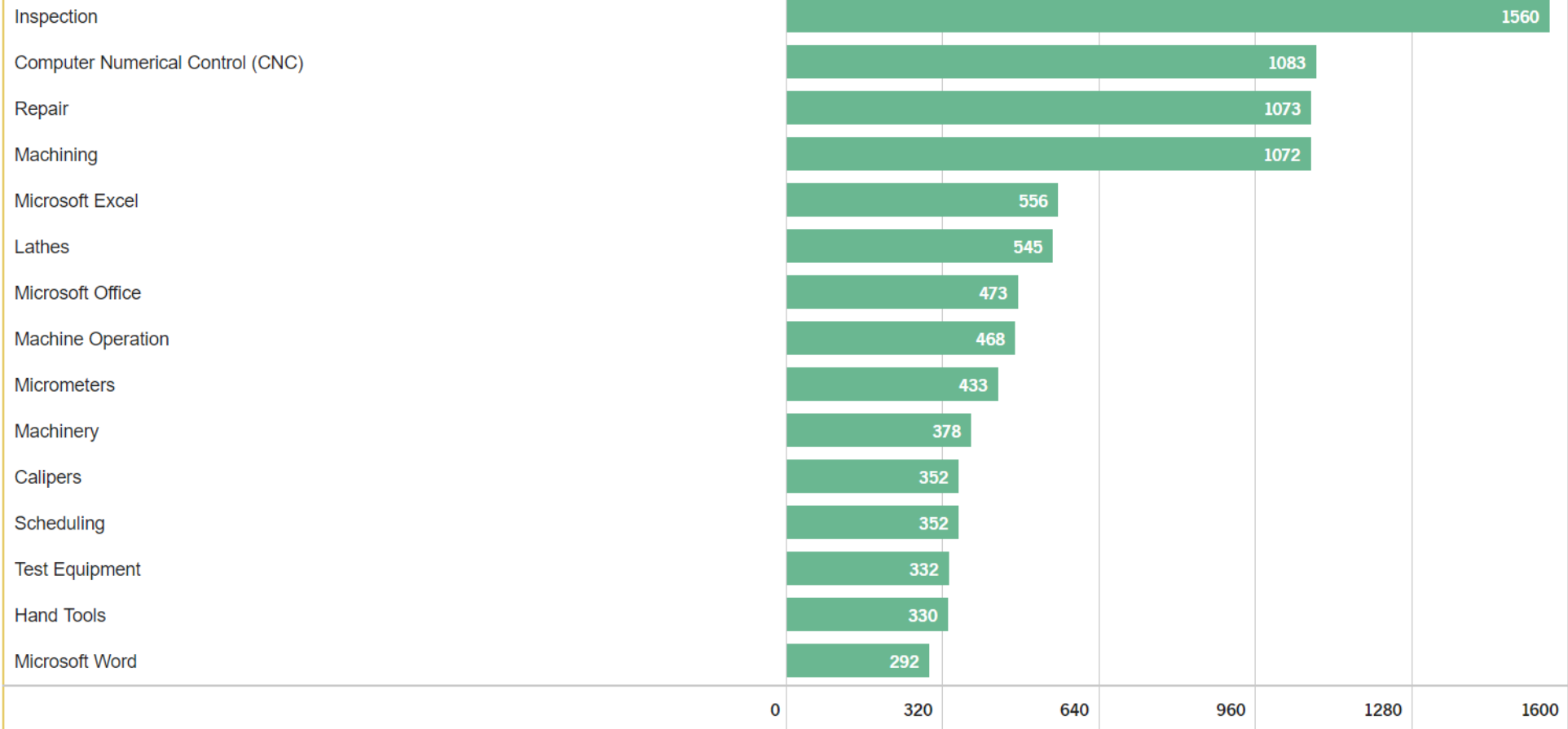
AGGREGATE CLUSTER - MANUFACTURING - FINGER LAK

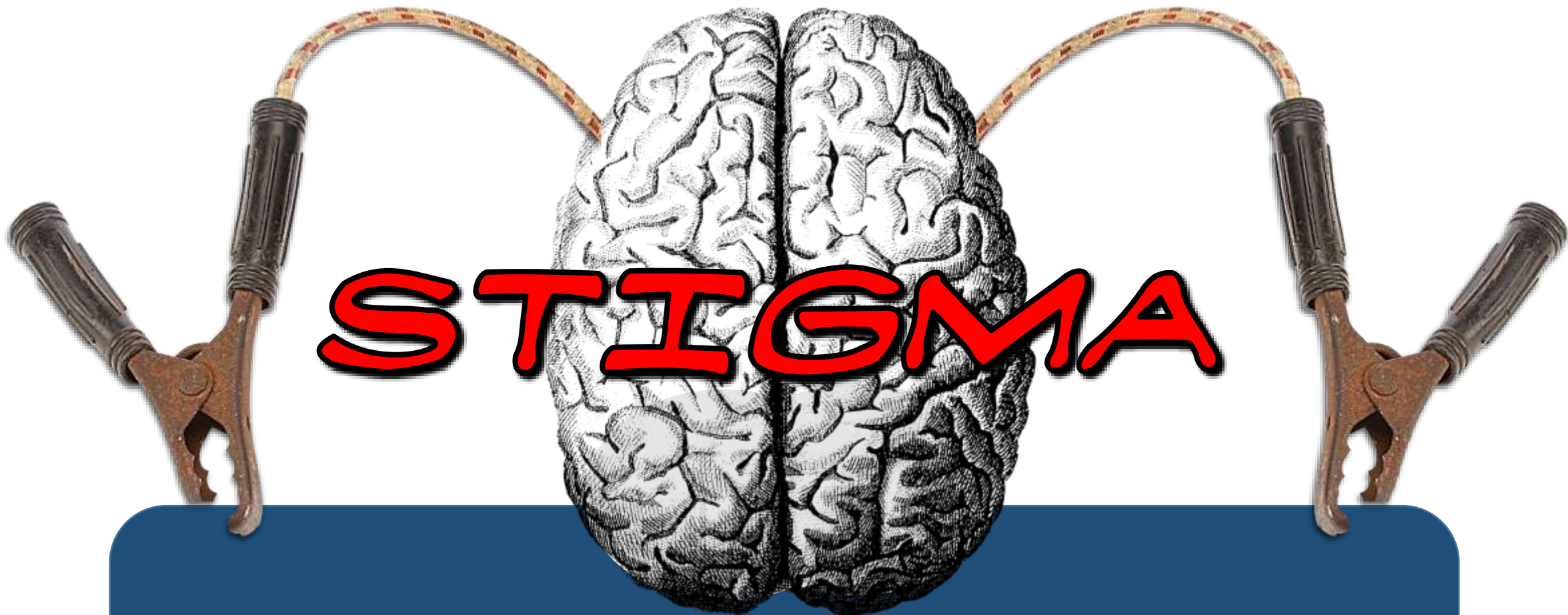
1. OCCUPATIONAL GROUP
DEFINITION

2.

6. REAL-TIME LABOR MARKET
DATA

ABOUT





STIGMA

OCCUPATIONAL
PROGRAMS

A spiral-bound notebook with a light blue grid pattern is shown. A blue pen with a silver tip and clip is resting diagonally across the notebook. A dark grey horizontal band is overlaid across the middle of the notebook, containing the word "CHALLENGES" in a large, white, stylized font.

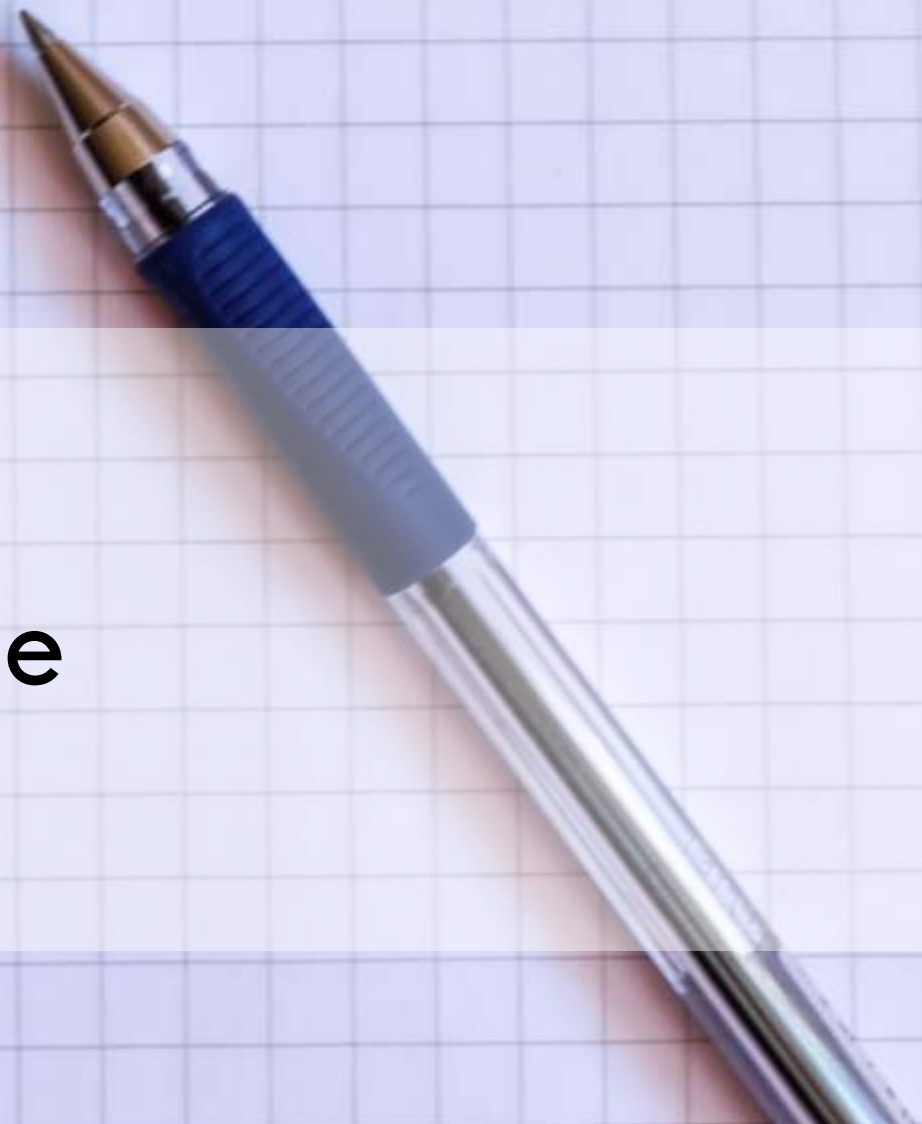
CHALLENGES

MAKING IT ALL HAPPEN

A conceptual image featuring a dark silhouette of a hand holding a clear glass jar. The jar is filled with a vibrant, multi-colored nebula, showing shades of red, orange, and blue against a dark background. The jar is positioned horizontally, and a bright, glowing nebula is visible in the background, partially obscured by the jar. The entire scene is set against a deep blue, starry night sky. The text "Promote scientific inquiry." is overlaid in the bottom left corner.

Promote scientific inquiry.

Know that you
don't need to be
an expert.

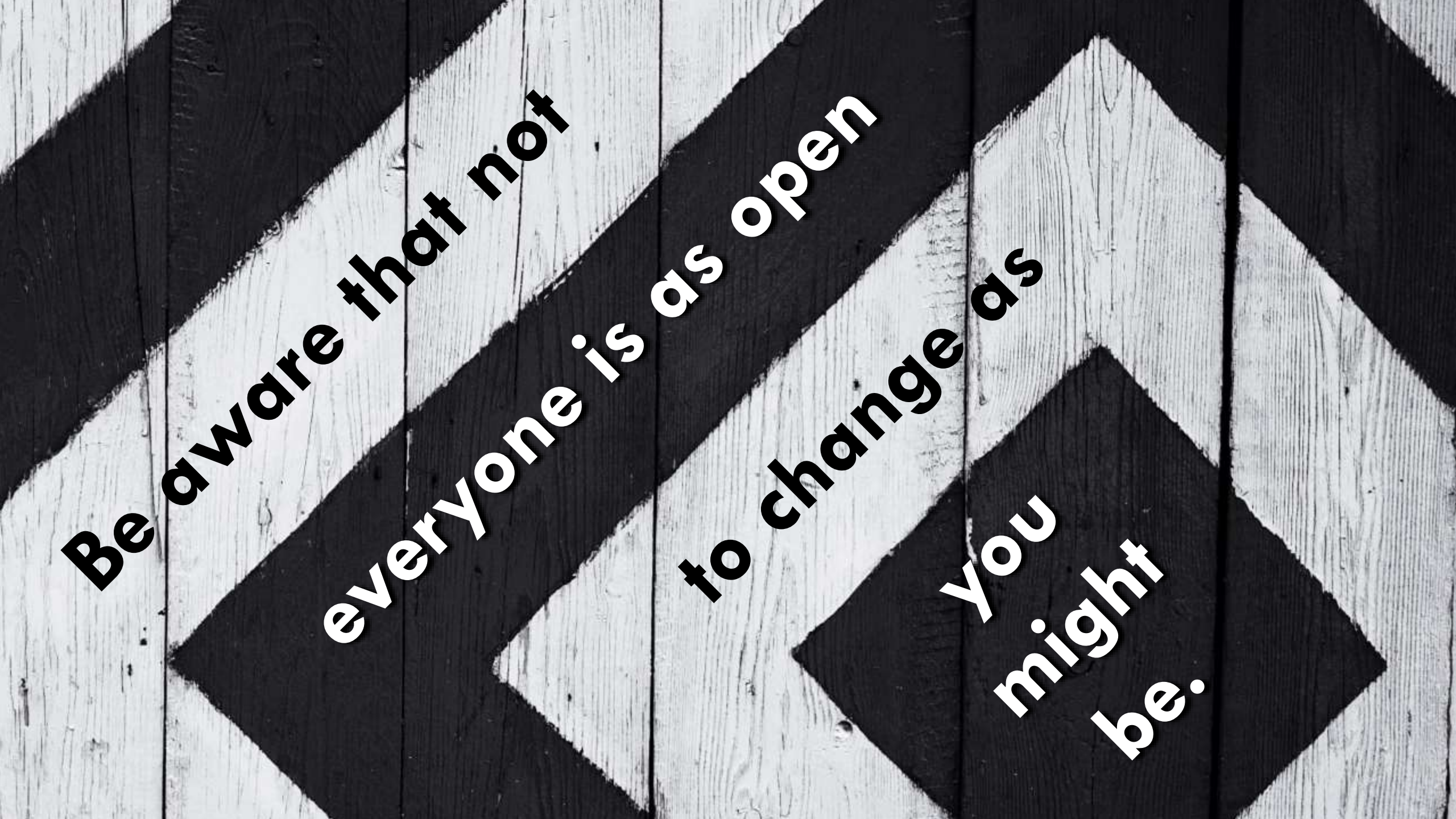


Help others
overcome fear.

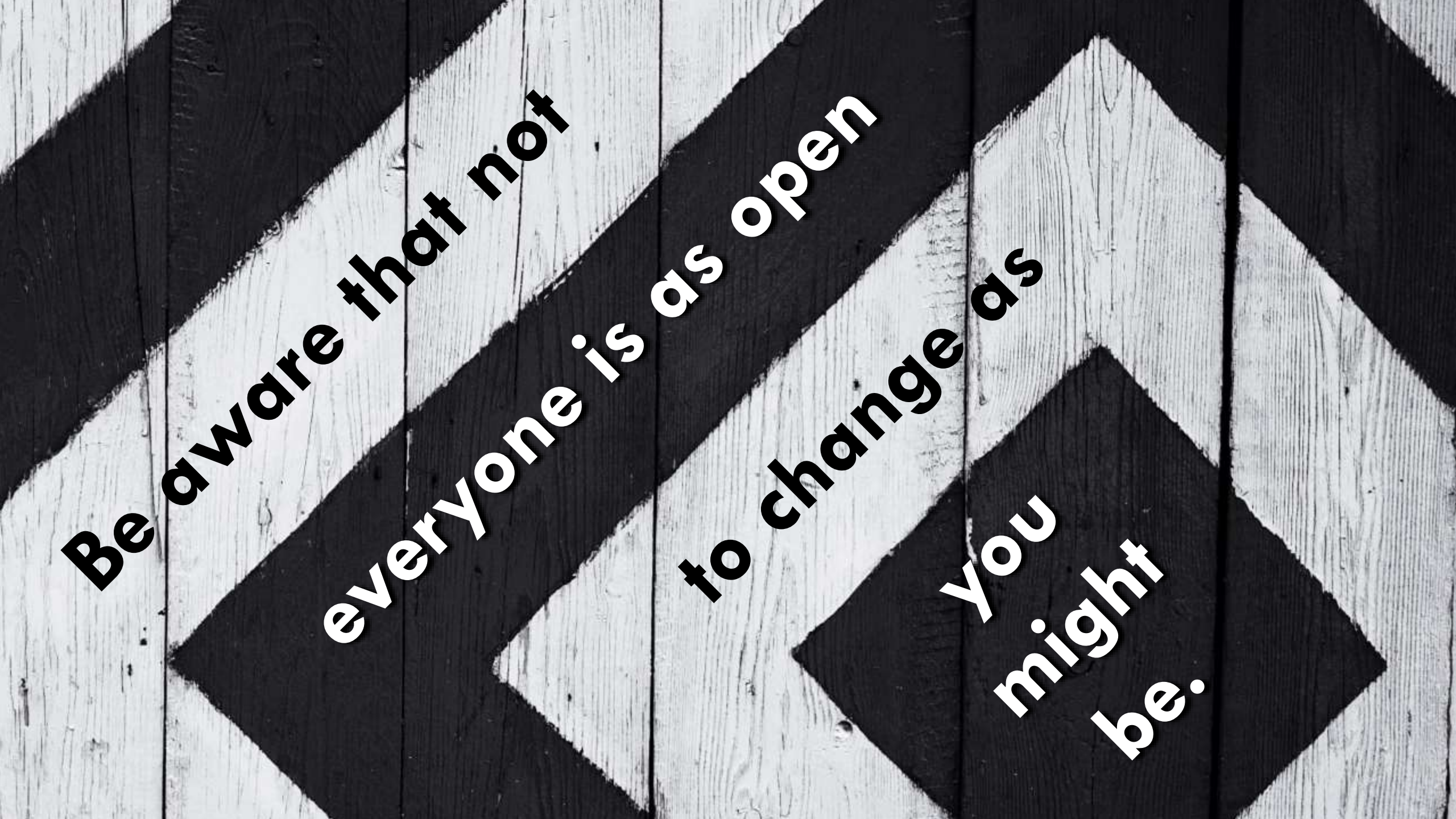


Ask
WHY?

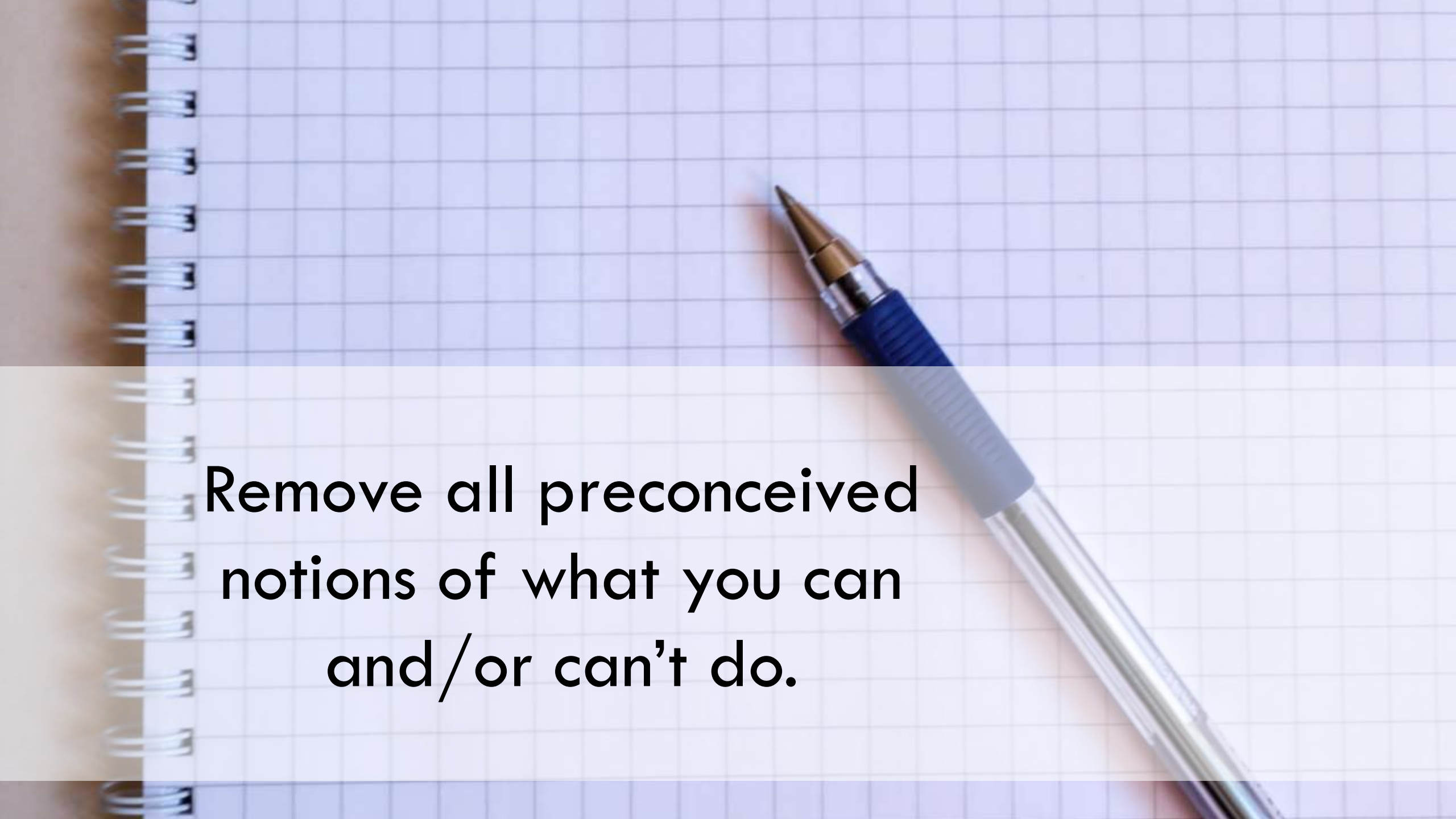




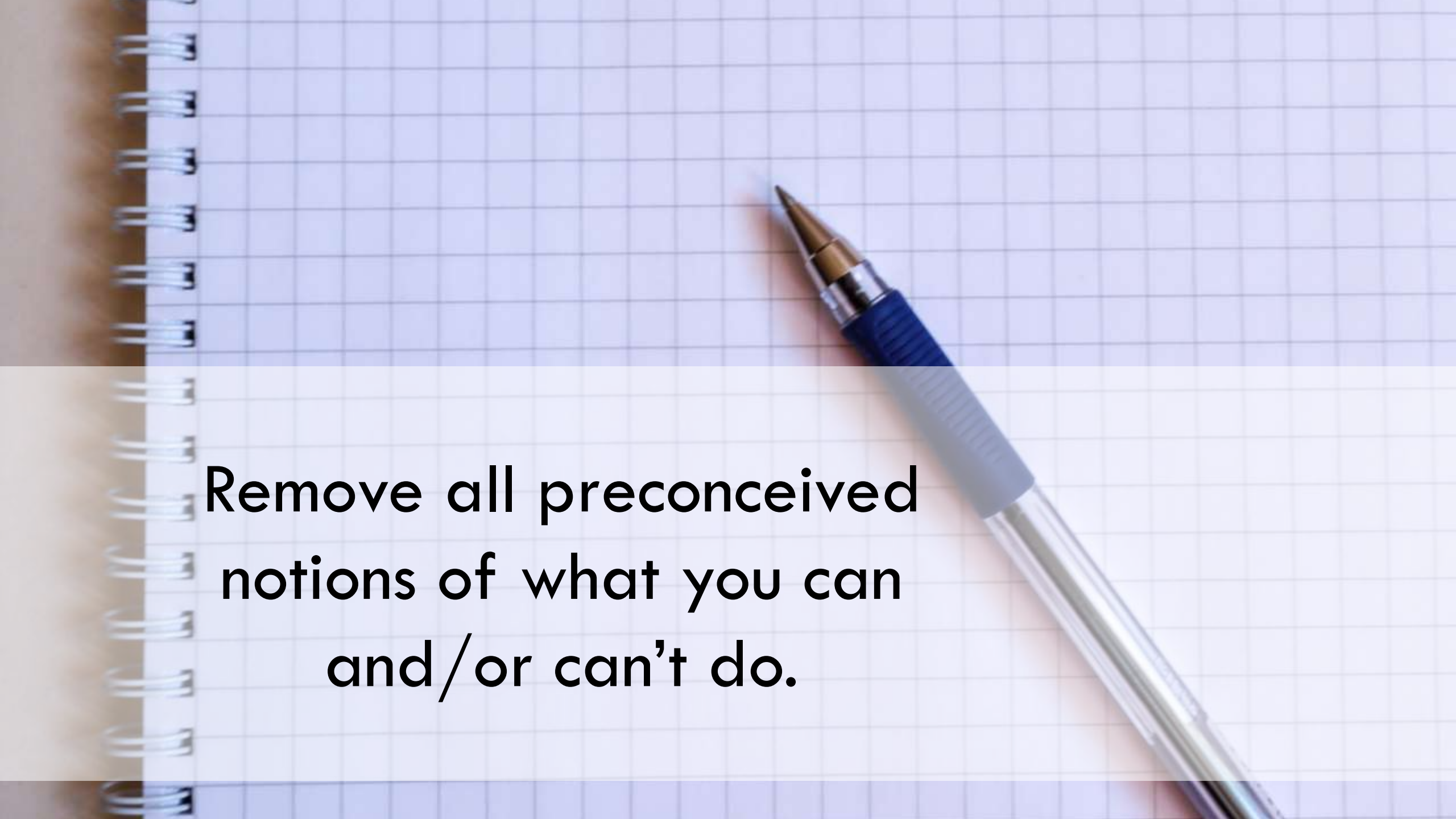
**Be aware that not
everyone is as open
to change as
you
might
be.**



**Be aware that not
everyone is as open
to change as
you
might
be.**

A blue and silver pen is positioned diagonally across the right side of a spiral-bound notebook. The notebook has a light blue cover and a white grid pattern on its pages. The text is centered on the left page of the notebook.

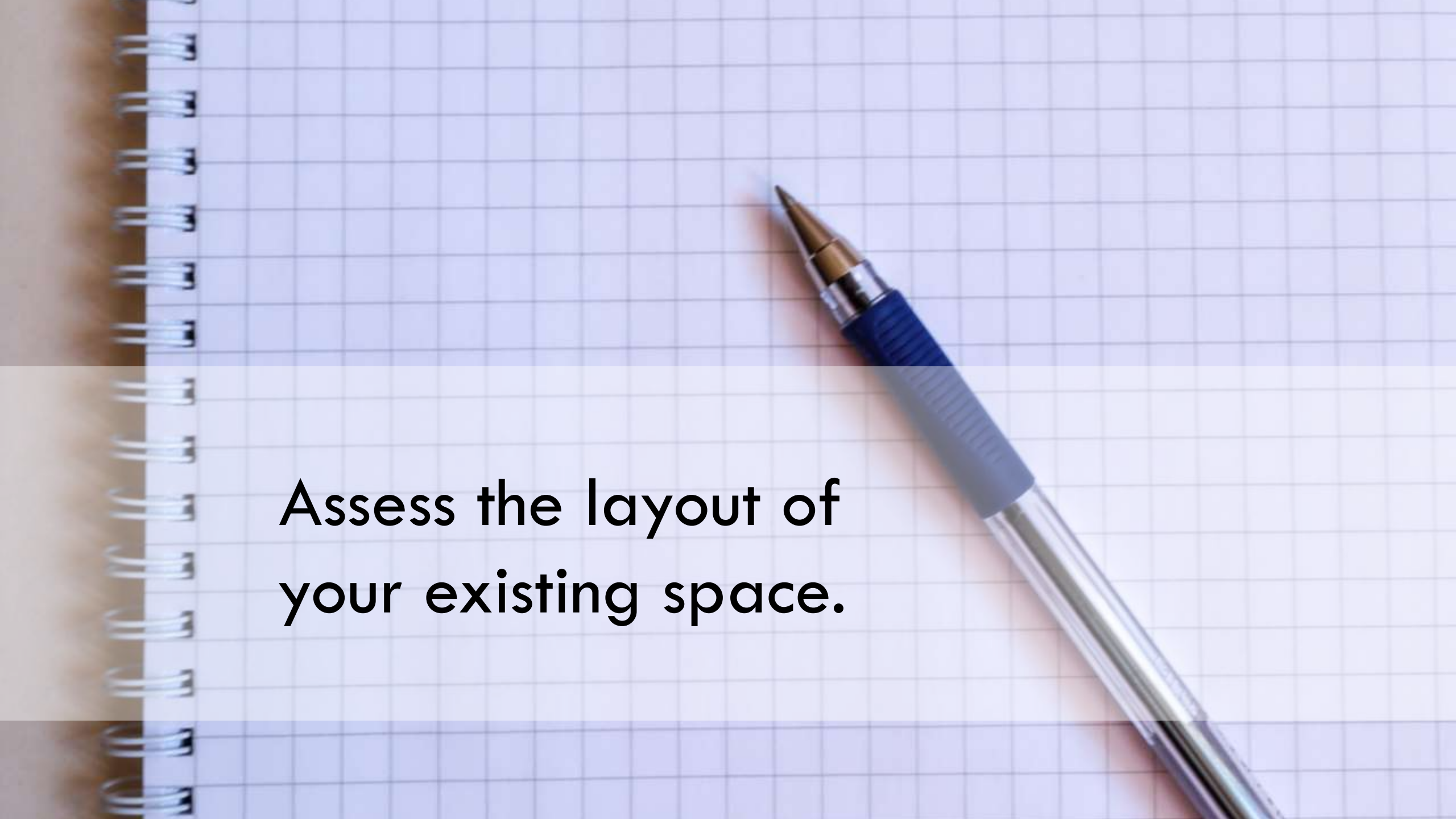
Remove all preconceived
notions of what you can
and/or can't do.

A blue and silver ballpoint pen lies diagonally across a spiral-bound notebook. The notebook's pages are white with a light blue grid pattern. The pen has a blue textured grip and a silver barrel. The text is centered on the left side of the notebook page.

Remove all preconceived
notions of what you can
and/or can't do.

Think beyond
the outside of that
proverbial box.



A blue and silver ballpoint pen lies diagonally across the right side of a spiral-bound notebook. The notebook's pages are white with a light blue grid pattern. The spiral binding is visible on the left edge. A semi-transparent white horizontal band is positioned across the middle of the image, serving as a background for the text.

**Assess the layout of
your existing space.**

A close-up photograph of a vintage black rotary telephone. The phone is positioned diagonally, with the handset on the left and the circular dial on the right. The dial features numbers 1 through 0 in a circular arrangement. The phone is set against a blurred, warm-toned background. A semi-transparent circular graphic is overlaid on the left side of the image, containing the text.

Start
meaningful
conversations.

Advocate.



Advocate.



A close-up photograph of a person's hand holding a small, white rectangular card. The hand is positioned on the left side of the frame, with the thumb and index finger gripping the card. The card is held horizontally and features the word "Collaborate." printed in a bold, black, sans-serif font, repeated three times in a vertical stack. The background is out of focus, showing a dark suit jacket on the left and a light-colored shirt with buttons on the right.

Collaborate.
Collaborate.
Collaborate.



Enter through the back door.

Be passionate!



MACGYVER

HIS MIND IS THE ULTIMATE WEAPON



Leah Hamilton

Executive Director

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