



Center of Visual Expertise

# LEARNING TO SEE

## Human Factors Conference *SafeStart*

November 5, 2019

**“You see, but you  
do not observe.  
The distinction is  
obvious.”**

**Sherlock Holmes to Watson**



# Toledo Museum of Art

Founded in 1901

Globally Recognized for the Quality of the Collection

400,000 Visitors per Year

40+ Acre Campus



Image courtesy of the Toledo Museum of Art.

# About COVE: Center of Visual Expertise from the Toledo Museum of Art

- Founded by the world-renowned Toledo Museum of Art
- Combines safety experts with art educators to develop innovative methods to help workers better see the world around them
- COVE believes that all incidents are preventable
- Partnership with Campbell Institute and National Safety Council to enact this vision

**“Small minds are  
concerned with the  
extraordinary, great  
minds with the  
ordinary”**



People often see what they expect to see and hear what they expect to hear.

**Harper Lee**

***To Kill a Mockingbird***

Every day...

We ask people to  
perform tasks  
that require  
**seeing**



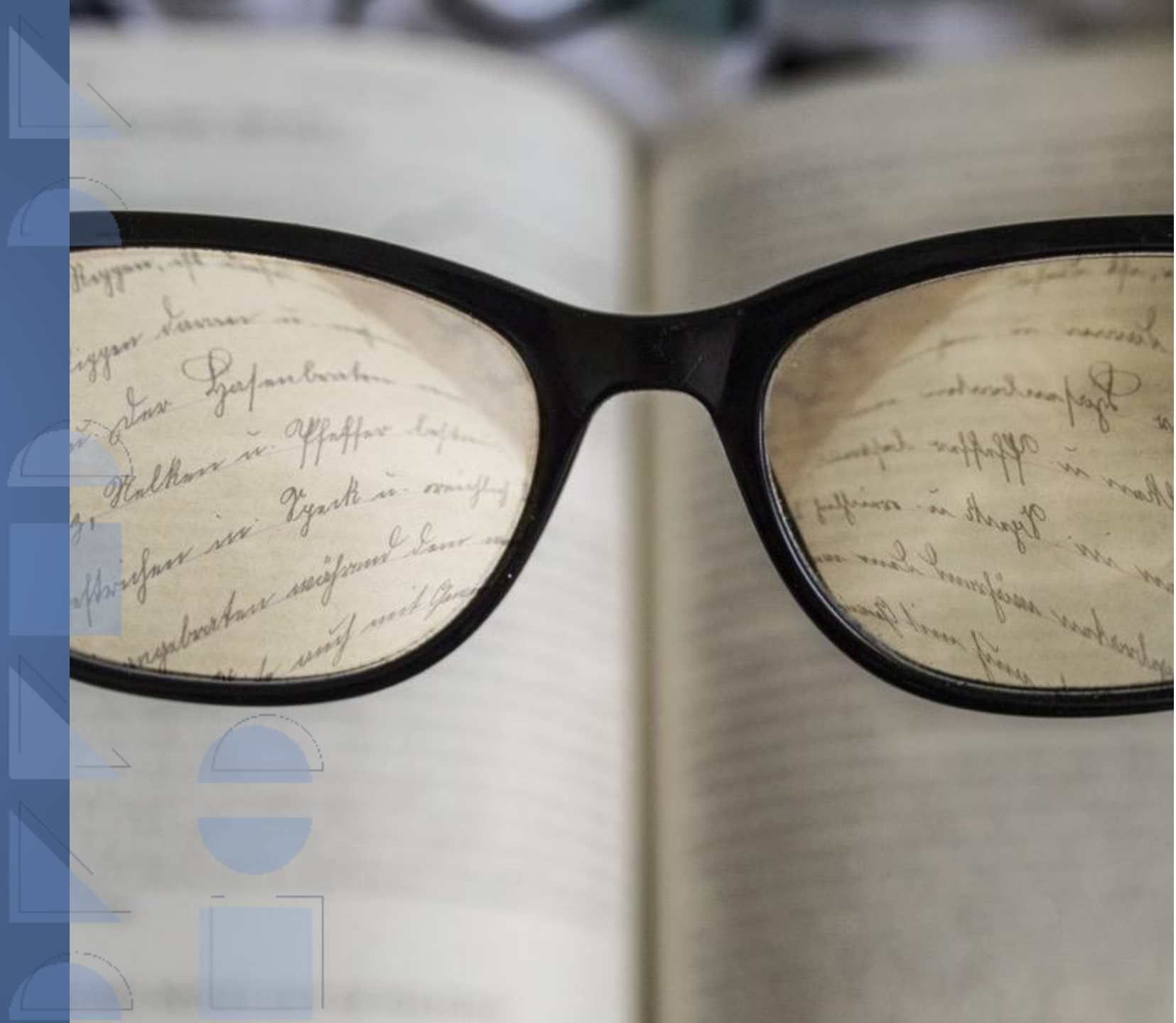


Every day...

We **train** people  
to do many things

# BUT...

Do we train  
people **how to  
see?**





“It is not enough  
to know  
intellectually what  
something is.  
We must be able  
to see it.”





17

24 – 32

# We all see things a bit differently



# WE SPEAK VISUAL LANGUAGE



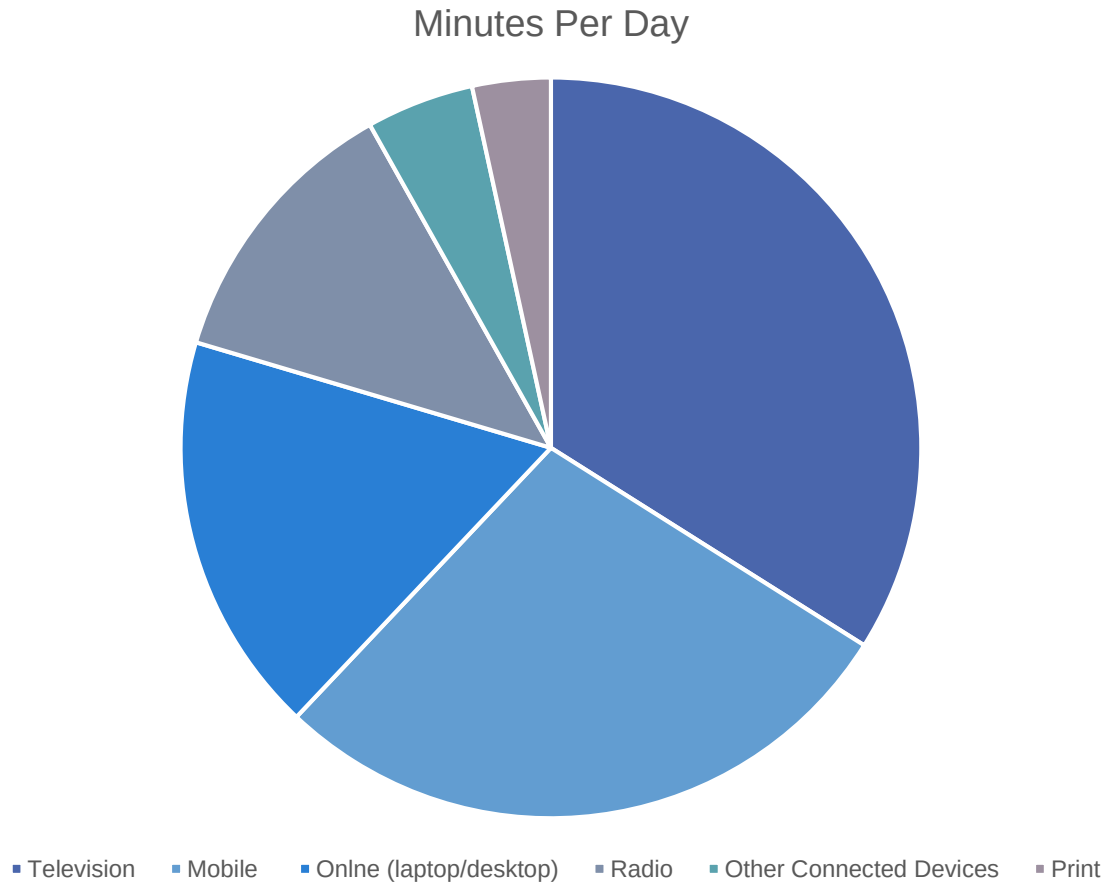
# INTRODUCTION TO VISUAL LANGUAGE

## Awareness of Visual Bias and Responding to It



- Once you see something, it is hard to remember what it was like not to see it
- Sometimes, you cannot see what is in front of you, even if you know it is there
- You are always filling in blanks based on what you expect to be there
- You are only **seeing as little as 10% of what you think you are seeing**

## OUR WORLD IS SATURATED WITH VISUAL INFORMATION



- **1.5 billion:** number of photos uploaded to social media every day
- **11 hours:** daily number of hours people in U.S. consume electronic media in 2017.
- **24 minutes:** number of minutes people in the US consume print media in 2017

# OUR WORLD IS SATURATED WITH VISUAL INFORMATION

Let's look at an example



# OUR WORLD IS SATURATED WITH VISUAL INFORMATION

What about the same scene eight years later?



# OUR WORLD IS SATURATED WITH VISUAL INFORMATION

Notice the key  
difference?



# Visual Literacy

Visual Literacy is  
the ability to **read**,  
**comprehend**, and  
**write** visual  
language



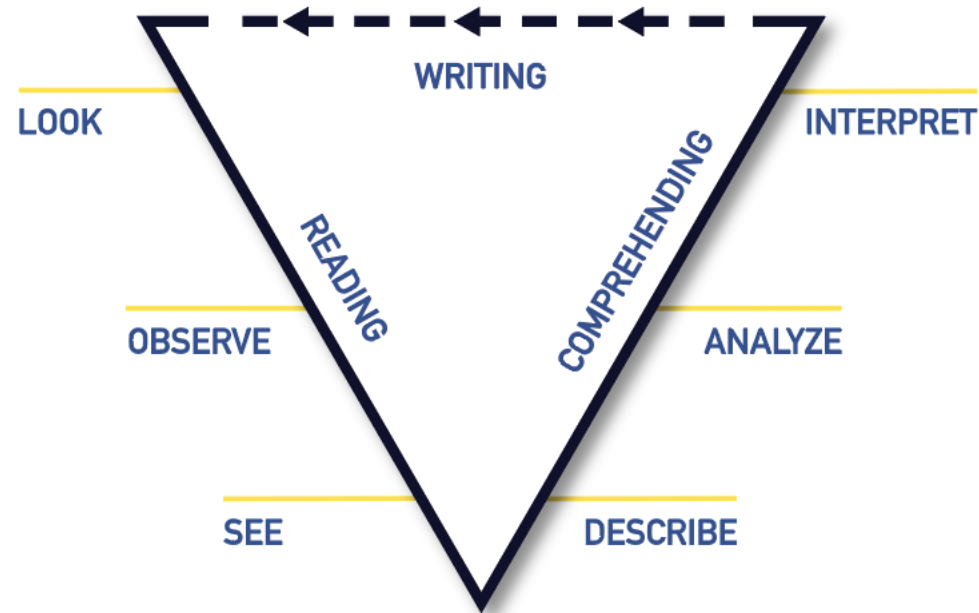
# TOLEDO MUSEUM OF ART FRAMEWORK FOR SEEING



Image courtesy of the Toledo Museum of Art.

# SPEAKING VISUAL LANGUAGE

We teach the ability to read, comprehend, and write visual language



## READING

visual language is about the *process* of seeing

## COMPREHENDING

visual language is about the *interpretation* of seeing

## WRITING

visual language is about the *action you take* in response to what you have seen

# SPEAKING VISUAL LANGUAGE APPLIED TO SAFETY



## HAZARD

visual language is about the **process** of seeing

## RISK ASSESSMENT

visual language is about the **interpretation** of seeing

## ACTION

visual language is about the **action you take** in response to what you have seen

CAN YOU  
SEE IT?



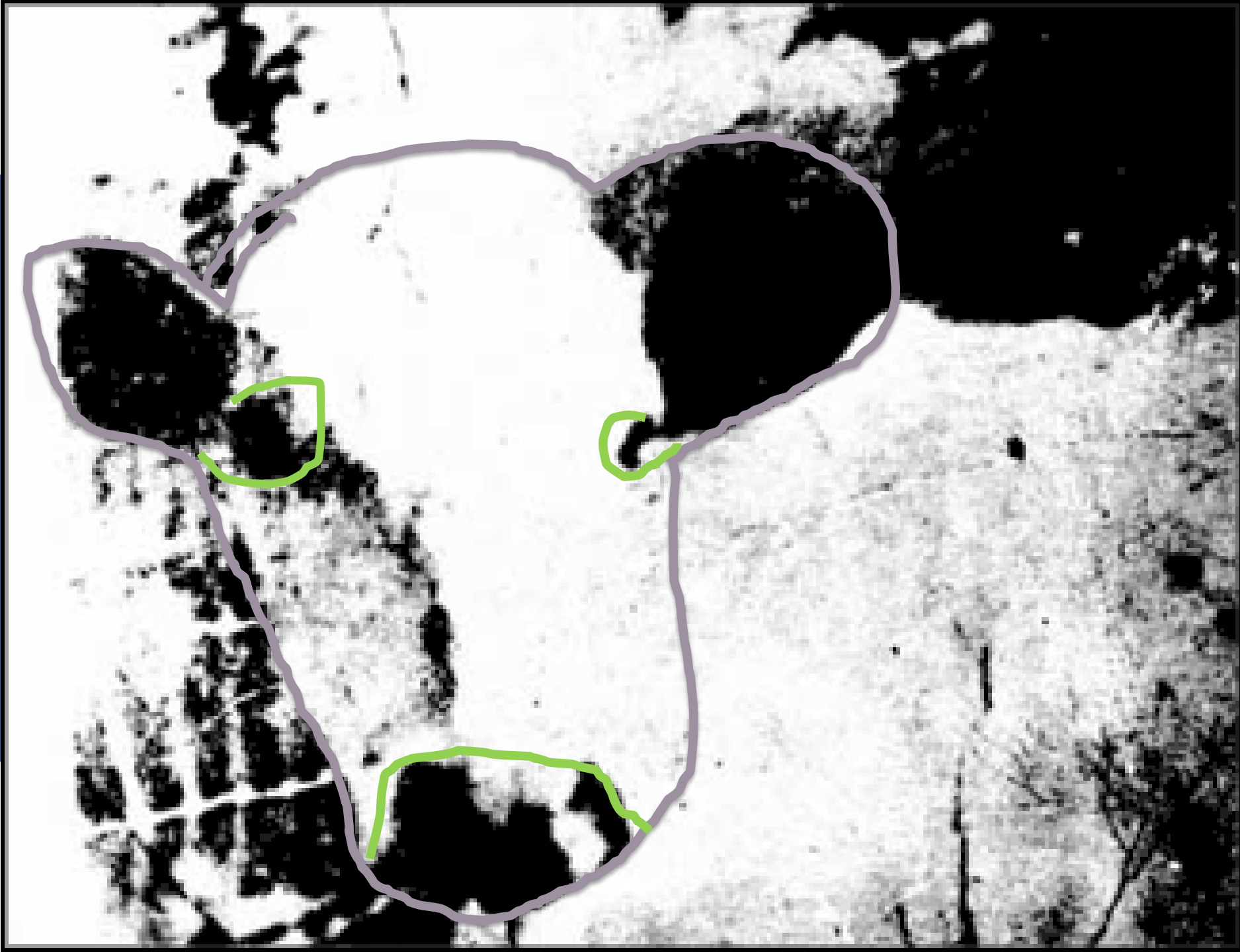
**CAN YOU SEE  
IT NOW?**



**NOW CAN YOU  
SEE IT?**









**EVERYTHING IS AN IMAGE**

**Can you read this?**

**EVERYTHING IS AN IMAGE**

Can you read it is?

**EVERYTHING IS AN IMAGE**

**Are you reading this?**

We're always  
filling in the gaps

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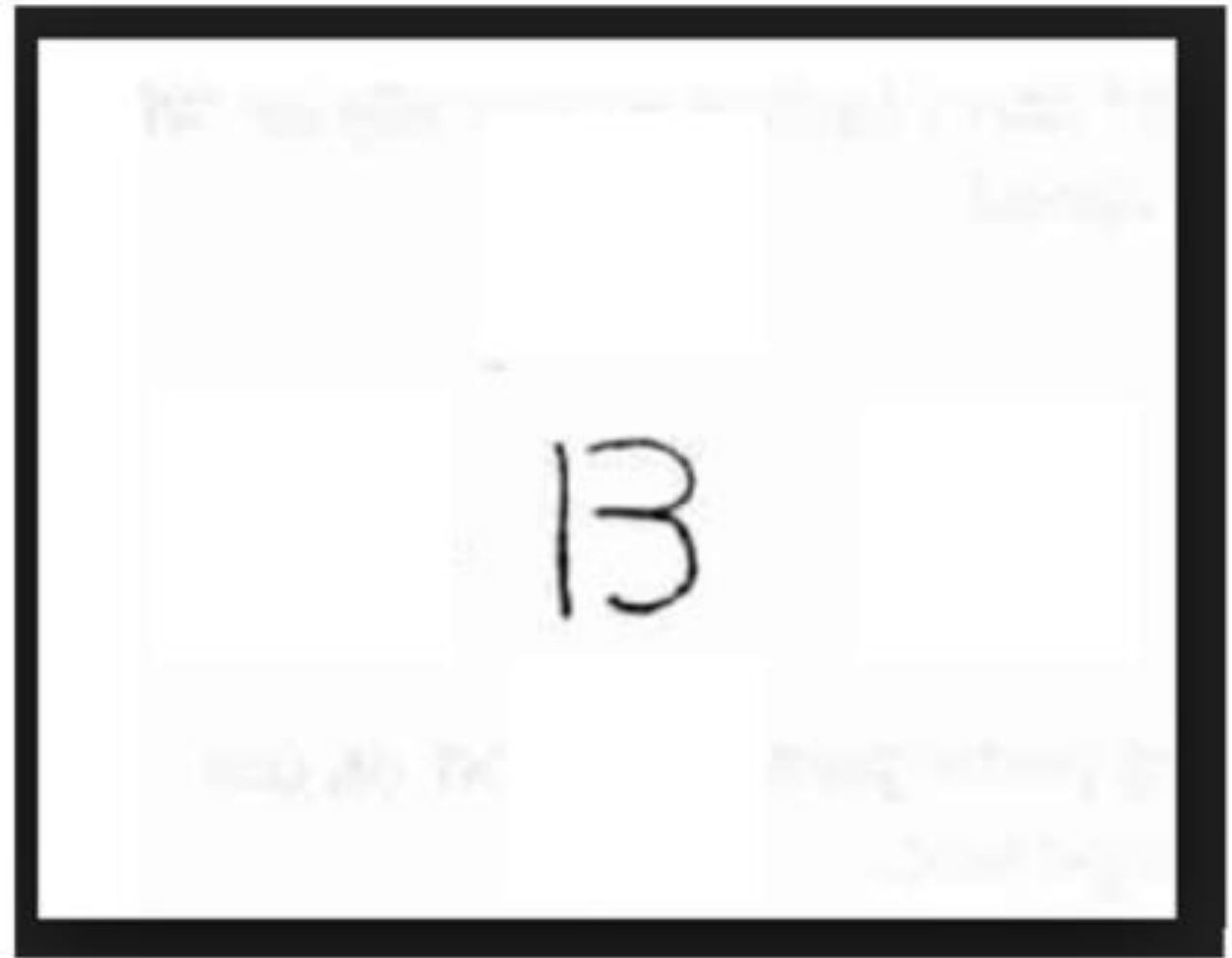


Magnificence



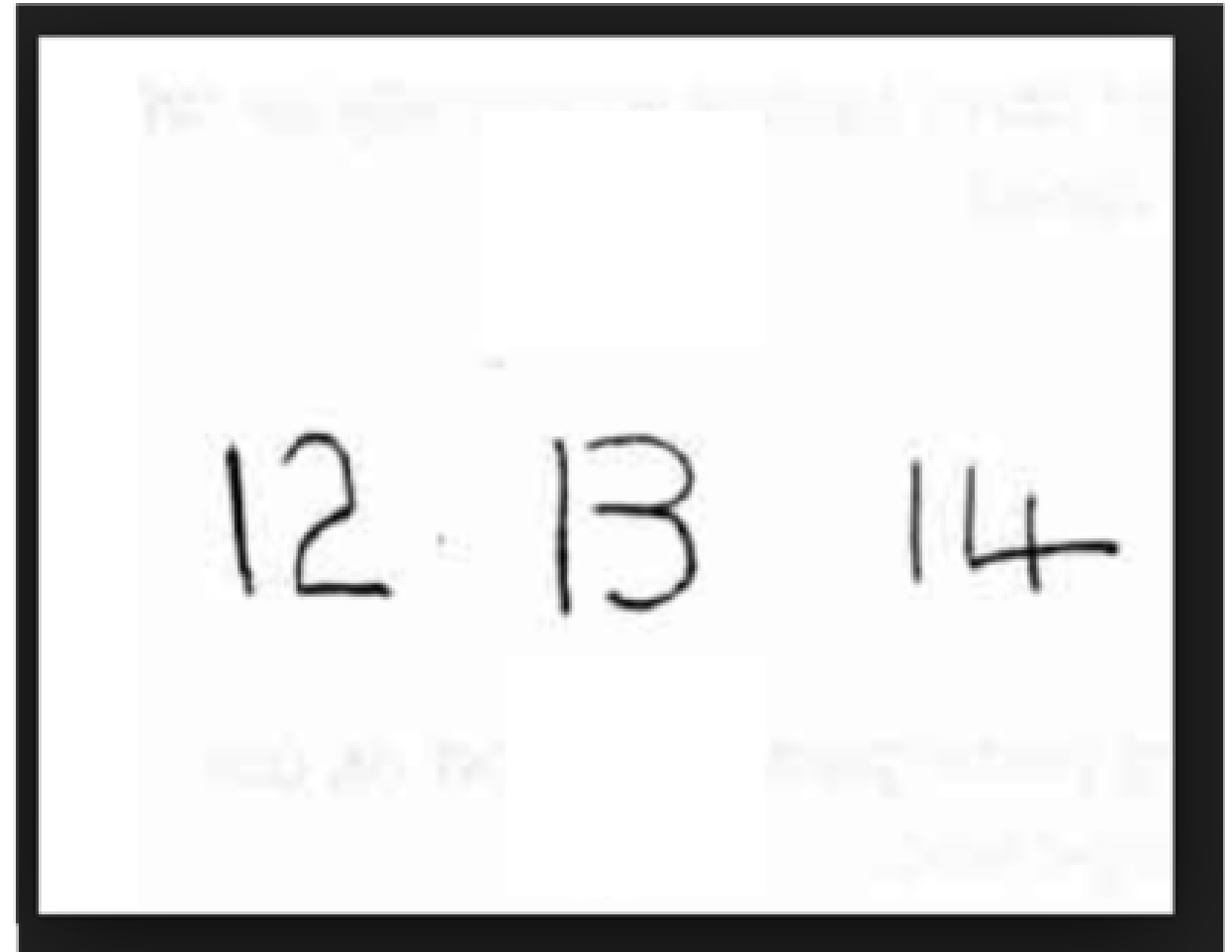
# VISUAL LITERACY

Not just what we  
see but the way  
we see it



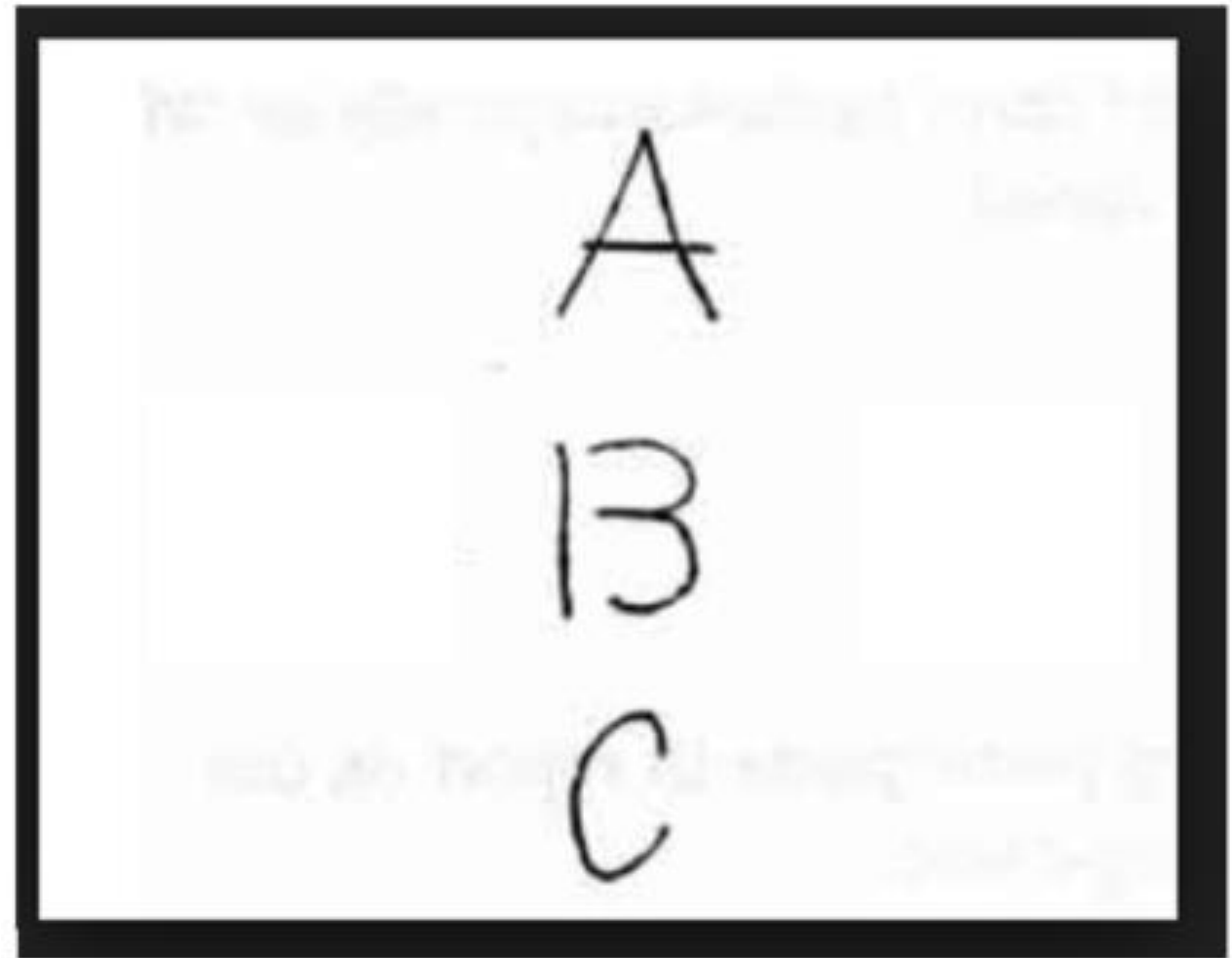
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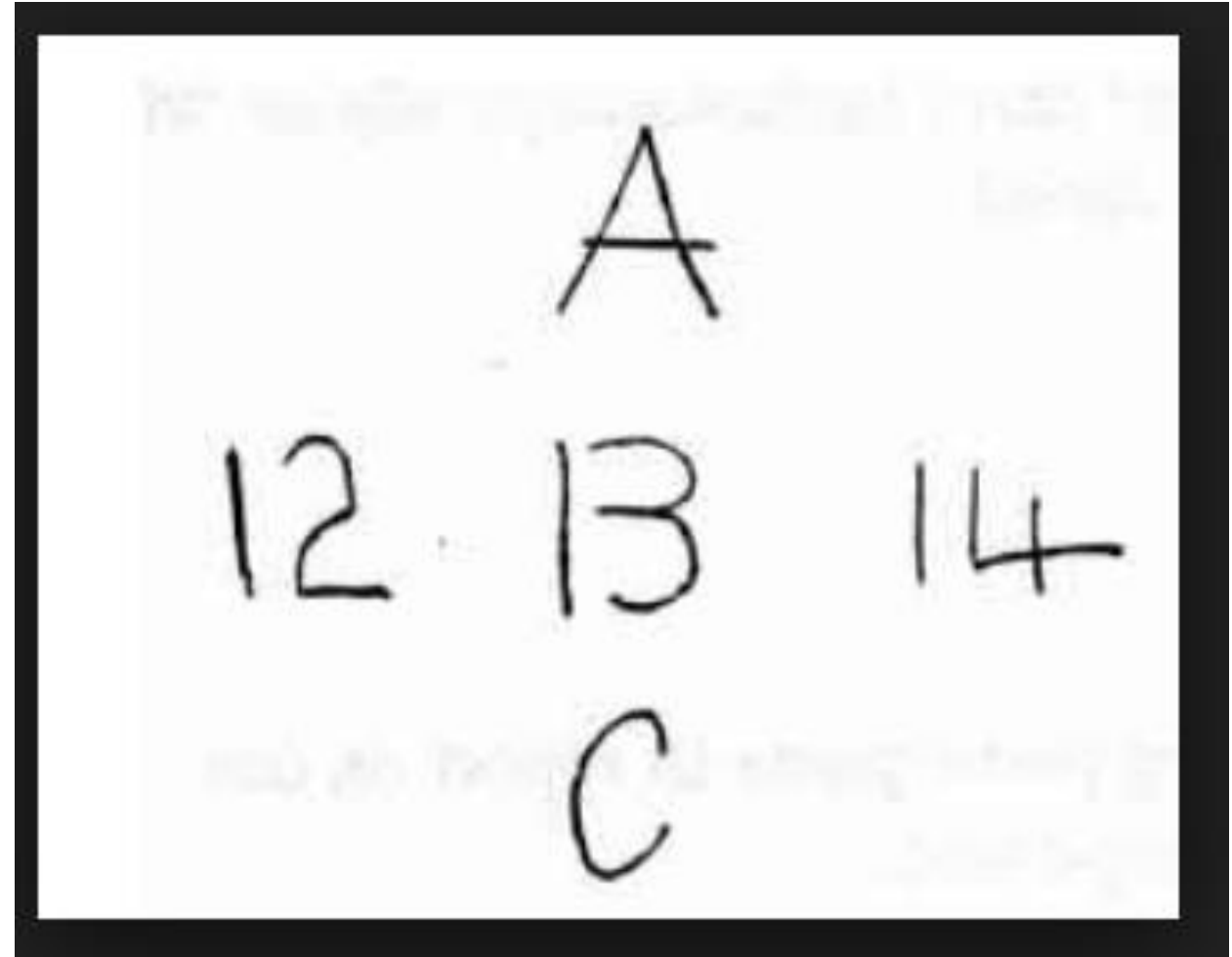
# VISUAL LITERACY

Not just what we  
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# VISUAL LITERACY

Not just what we  
see but the way  
we see it



WHY ART?



The background features a dark blue horizontal band. On the left and right sides of this band, there are decorative elements consisting of semi-transparent geometric shapes: squares, circles, and triangles, some of which are partially cut off by the edges of the frame.

Seeing the Whole PICTURE®



## □ Seeing the Whole PICTURE<sup>®</sup>

PI- Perimeter to Interior

C- Contrast

TU- Turn it Upside Down

R- Repeat

E- Explain



# Adapting the Elements of Art

Line

Shape

Color

Texture

Space



# The Elements of Art

Line

Shape

Color

Texture

Space



# The Elements of Art

Line

Shape

Color

Texture

Space



# The Elements of Art

Line

Shape

Color

Texture

Space



# The Elements of Art

Line

Shape

Color

Texture

Space



# The Elements of Art

Line

Shape

Color

Texture

Space







# Focusing on EHS Operations

Improved Hazard Assessment

Improved Observations

Improved Incident Investigations

Improved Employee Engagement

A Holistic Framework for 'Taking Safety Home'



# APPLICATION: Owens Corning

- Integration of visual literacy into **existing** hazard recognition training program
- Certification as HRC specialists
- Focus on transitioning the elements of art into a basic vocabulary of hazard recognition





## APPLICATION: Cummins

- Focused on hazard identification
- Work cell focused – 16 operators trained
  - 30 safety issues identified via the elements of art – color, line, texture, space
  - 25 “Find It Fix It”
  - Area risk score increased as a result – then mitigated
- 225 employees now trained plant wide

# Implementation

- Primary Focus: Hazard Identification
- **Visual literacy** is a key tool in this initiative to increase the ability to identify hazards
- Training all new employees
  - PowerPoint & exercises to promote employee engagement
  - Training targets hazard identification & awareness

## Thinking Visual FIFI “Seeing is Believing”

# Thinking Visual FIFI

"Seeing is Believing"

Name: \_\_\_\_\_

Hazard Identifier: \_\_\_\_\_

Location/Section: \_\_\_\_\_

Date: \_\_\_\_\_

**Instructions: Circle all of the Visual Literacy tools below that helped in identifying the hazard**

| Learning to Look Approach                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Elements of Art                                                                                                                                                                                                                                                                                                                                                             | Principles of Design                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | PICTURE Process                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p style="text-align: center;"><b>Learning to Look Approach</b></p> <div style="text-align: center;"> </div> <p><b>LOOK</b></p> <p>Identifying a hazard with your eyes. You may identify a hazard by looking at a picture or a video. You may also identify a hazard by looking at a picture or a video that you have taken or seen. You may also identify a hazard by looking at a picture or a video that you have taken or seen.</p> <p><b>OBSERVE</b></p> <p>Observing a hazard with your eyes. You may observe a hazard by looking at a picture or a video. You may also observe a hazard by looking at a picture or a video that you have taken or seen. You may also observe a hazard by looking at a picture or a video that you have taken or seen.</p> <p><b>SEE</b></p> <p>Seeing a hazard with your eyes. You may see a hazard by looking at a picture or a video. You may also see a hazard by looking at a picture or a video that you have taken or seen. You may also see a hazard by looking at a picture or a video that you have taken or seen.</p> <p><b>DESCRIBE</b></p> <p>Describing a hazard with your eyes. You may describe a hazard by looking at a picture or a video. You may also describe a hazard by looking at a picture or a video that you have taken or seen. You may also describe a hazard by looking at a picture or a video that you have taken or seen.</p> <p><b>ANALYZE</b></p> <p>Analyzing a hazard with your eyes. You may analyze a hazard by looking at a picture or a video. You may also analyze a hazard by looking at a picture or a video that you have taken or seen. You may also analyze a hazard by looking at a picture or a video that you have taken or seen.</p> <p><b>INTERPRET</b></p> <p>Interpreting a hazard with your eyes. You may interpret a hazard by looking at a picture or a video. You may also interpret a hazard by looking at a picture or a video that you have taken or seen. You may also interpret a hazard by looking at a picture or a video that you have taken or seen.</p> | <p style="text-align: center;"><b>Elements of Art</b></p> <div style="text-align: center;"> <p><b>COLOR</b></p> </div> <div style="text-align: center;"> <p><b>LINE</b></p> </div> <div style="text-align: center;"> <p><b>SHAPE</b></p> </div> <div style="text-align: center;"> <p><b>SPACE</b></p> </div> <div style="text-align: center;"> <p><b>TEXTURE</b></p> </div> | <p style="text-align: center;"><b>Principles of Design</b></p> <div style="text-align: center;"> <p><b>BALANCE</b></p> </div> <div style="text-align: center;"> <p><b>EMPHASIS</b></p> </div> <div style="text-align: center;"> <p><b>HARMONY</b></p> </div> <div style="text-align: center;"> <p><b>MOVEMENT</b></p> </div> <div style="text-align: center;"> <p><b>PROPORTION</b></p> </div> <div style="text-align: center;"> <p><b>RHYTHM</b></p> </div> <div style="text-align: center;"> <p><b>UNITY</b></p> </div> <div style="text-align: center;"> <p><b>VARIETY</b></p> </div> | <p style="text-align: center;"><b>PICTURE Process</b></p> <p><b>PI:</b> peripheral to interior</p> <div style="text-align: center;"> </div> <p><b>C:</b> contrast (looking)</p> <div style="text-align: center;"> </div> <p><b>TU:</b> turn upside down (change your perspective)</p> <div style="text-align: center;"> </div> <p><b>R:</b> repeat</p> <div style="text-align: center;"> </div> <p><b>E:</b> explain</p> <div style="text-align: center;"> </div> |

**Comments:** \_\_\_\_\_

# Risk Score Comparison

**Fundamental Risk Scores by Hazard**

| Hazard Classification    | Fundamental Risks<br>(Total Score before Controls) |
|--------------------------|----------------------------------------------------|
| Biological Hazard        | 0                                                  |
| Chemical Hazard          | 2,980                                              |
| Confined Space Hazard    | 0                                                  |
| Contractor Hazard        | 0                                                  |
| Driving Hazard           | 0                                                  |
| Electrical Hazard        | 0                                                  |
| Ergonomics Hazard        | 5,090                                              |
| Fall from Height Hazard  | 230                                                |
| Fire Hazards             | 30                                                 |
| Hand Hazards             | 4,610                                              |
| High Pressure Fluids     | 50                                                 |
| Hoist & Crane Hazards    | 0                                                  |
| Lone Worker Hazards      | 0                                                  |
| LOTO Hazard              | 0                                                  |
| Machine Hazard           | 1,210                                              |
| Noise Hazard             | 140                                                |
| PIV / Pedestrian Hazard  | 30                                                 |
| Racking / Storage Hazard | 0                                                  |
| STF on the same level    | 310                                                |
| Other Hazard             | 360                                                |

*Initial*

**Additional  
2,174 Points  
Discovered**



**Fundamental Risk Scores by Hazard**

| Hazard Classification    | Fundamental Risks<br>(Total Score before Controls) |
|--------------------------|----------------------------------------------------|
| Biological Hazard        | 0                                                  |
| Chemical Hazard          | 2,550                                              |
| Confined Space Hazard    | 0                                                  |
| Contractor Hazard        | 0                                                  |
| Driving Hazard           | 0                                                  |
| Electrical Hazard        | 0                                                  |
| Ergonomics Hazard        | 4,510                                              |
| Fall from Height Hazard  | 660                                                |
| Fire Hazards             | 30                                                 |
| Hand Hazards             | 4,130                                              |
| High Pressure Fluids     | 330                                                |
| Hoist & Crane Hazards    | 30                                                 |
| Lone Worker Hazards      | 0                                                  |
| LOTO Hazard              | 0                                                  |
| Machine Hazard           | 1,540                                              |
| Noise Hazard             | 120                                                |
| PIV / Pedestrian Hazard  | 30                                                 |
| Racking / Storage Hazard | 0                                                  |
| STF on the same level    | 1,810                                              |
| Other Hazard             | 300                                                |

*w/ Visual Literacy*

# Remember from today.....

- ☐ We don't see as well as we think we do.
- ☐ We must slow down (a bit) to move from looking to seeing.
- ☐ We improve our understanding of the meaning when we see.
- ☐ We improve the impact of our actions when we have better meaning.



Center of Visual Expertise

Questions?