

Realityworks[®]
Live it. Learn it.[™]

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Creating Student Engagement Through Experiential Learning Tools

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Welcome & Introduction

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A little about Realityworks

- **DISTRIBUTION INTO EDUCATION**

- **67%** of school districts in the U.S.
- **90** countries worldwide
- **31,000** institutions
- **6,000,000** students served through the use of our products

- **EDUCATION PARTNER**

- Association for Career and Technical Education Board (NACTE)
- Chair of Industry Workforce Needs Coalition (IWNC)
- National Association of Agriculture Educators Member (NAAE)
- 100+ education trade shows (local, state, national)

- **EDUCATIONAL FOCUS**

- Interactive Learning Aids and Curriculum

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MARKETING

- Marketing Communications
- Marketing Management
- Marketing Research
- Merchandising
- Professional Selling



HOSPITALITY & TOURISM

- Lodging
- Recreation, Amusements, and Attractions
- Restaurants and Food and Beverage Services
- Travel and Tourism



AGRICULTURE, FOOD, & NATURAL RESOURCES

- Agribusiness Systems
- Animal Systems
- Environmental Service Systems
- Food Products and Processing Systems
- Natural Resources Systems
- Plant Systems
- Power, Structural, and Technical Systems



ARTS, A/V TECHNOLOGY, & COMMUNICATIONS

- Audio/Video Technology and Film
- Journalism and Broadcasting
- Performing Arts
- Printing Technology
- Telecommunications
- Visual Arts



BUSINESS MANAGEMENT & ADMINISTRATION

- Administrative Services
- Business Information Management
- Operations Management
- Human Resources Management
- Management



FINANCE

- Accounting
- Banking Services
- Business Finance
- Securities and Investments
- Insurance



GOVERNMENT & PUBLIC ADMINISTRATION

- Foreign Service
- Governance
- National Security
- Planning
- Public Management and Administration
- Regulation
- Revenue and Taxation



HUMAN SERVICES

- Consumer Services
- Counseling and Mental Health Services
- Early Childhood Development and Services
- Family and Community Services
- Personal Care Services



LAW, PUBLIC SAFETY, CORRECTIONS, & SECURITY

- Correction Services
- Emergency and Fire Management Services
- Law Enforcement Services
- Legal Services
- Security and Protective Services



EDUCATION & TRAINING

- Administration and Administrative Support
- Professional Support Services
- Teaching/Training



HEALTH SCIENCES

- Biotechnology Research and Development
- Diagnostic Services
- Health Informatics
- Supportive Services
- Therapeutic Services



ARCHITECTURE & CONSTRUCTION

- Construction
- Design and Pre-construction
- Maintenance and Operations



MANUFACTURING

- Health, Safety, and Environmental Assurance
- Logistics and Inventory Control
- Manufacturing Production Process Development
- Maintenance, Installation, and Repair
- Production
- Quality Assurance



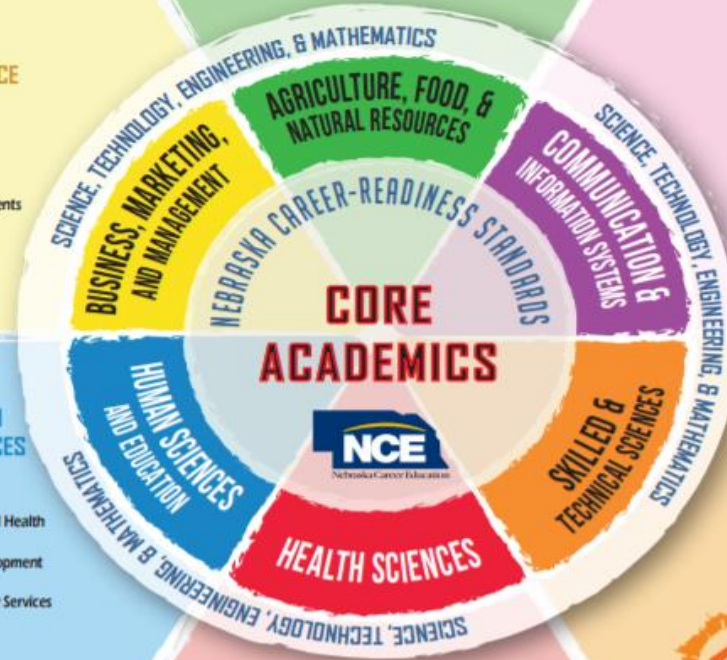
ENERGY & ENGINEERING

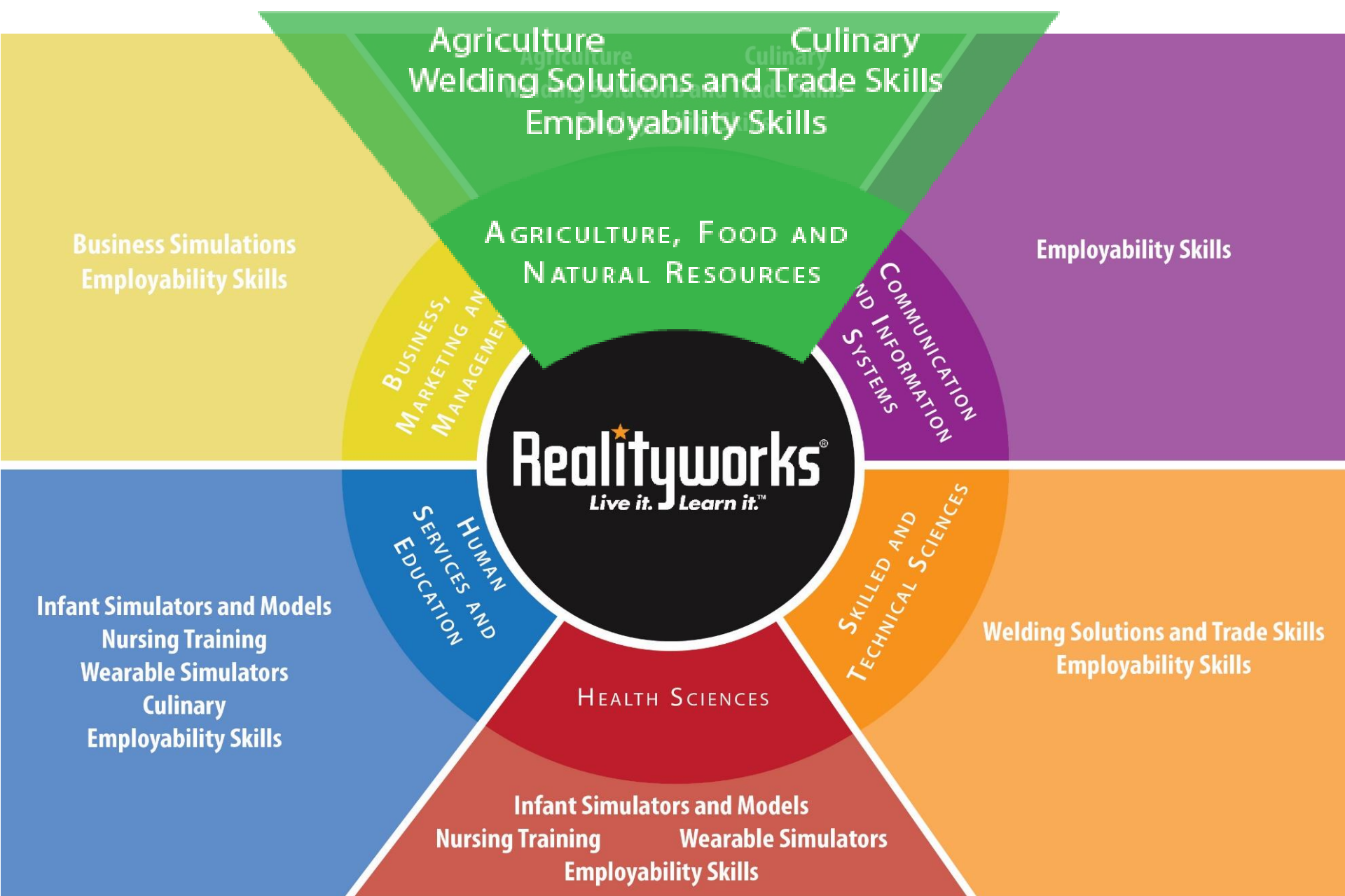
- Engineering and Technology
- Energy



TRANSPORTATION, DISTRIBUTION, & LOGISTICS

- Facility and Mobile Equipment Maintenance
- Health, Safety, and Environmental Management
- Logistics Planning and Management Services
- Sales and Services
- Transportation Operations
- Transportation/Systems Infrastructure Planning, Management, and Regulations
- Warehousing and Distribution Center Operations





Education Rethinking

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If you want a
new idea

look in an old
book.

Tell me and
I'll forget.

Show me and
I may remember

Involve me and
I will learn.

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Today's Learner

Motivated by doing

- Today's millennial generation do not trust what is said, but will trust what they can do themselves. Hands On Learning is KEY!

Want immediate feedback

- 70% of teens (aged 13-17) and 79 percent of young adults (aged 18-24) own smartphones.¹ Technology and Feedback helps LEARNING!

21st Century Interaction

- 84% of 12 to 17 year-olds own one or more personal media devices.² They are good at using technology to gain better UNDERSTANDING!

1. <http://www.nielsen.com/us/en/insights/news/2013/ring-the-bells-more-smartphones-in-students-hands-ahead-of-back.html>

2. http://oai.wsu.edu/Teaching_Resources/teaching_millennial_students/resources.html

Smart Teaching

50%

- Half of our brain focuses on processing visual information.

SIXTY
THOUSAND
TIMES

- We process visuals much faster than we process text.

90%

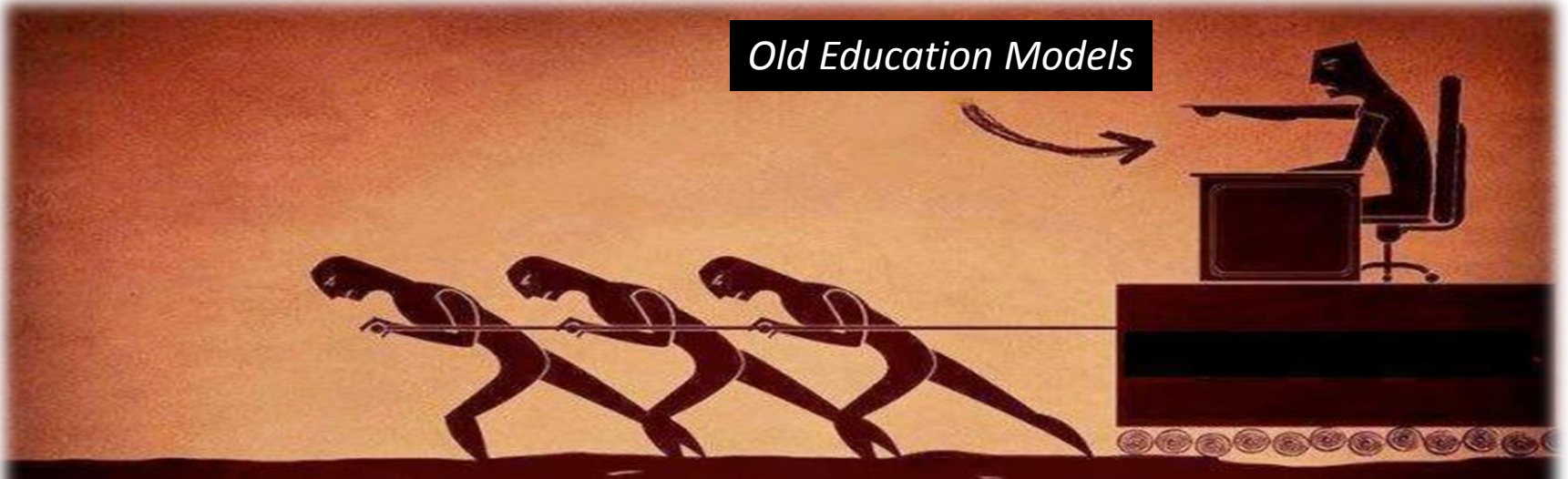
- We all forget ninety percent of what we learn in a month, most of us in 1 hour

SIX
TRIGGERS

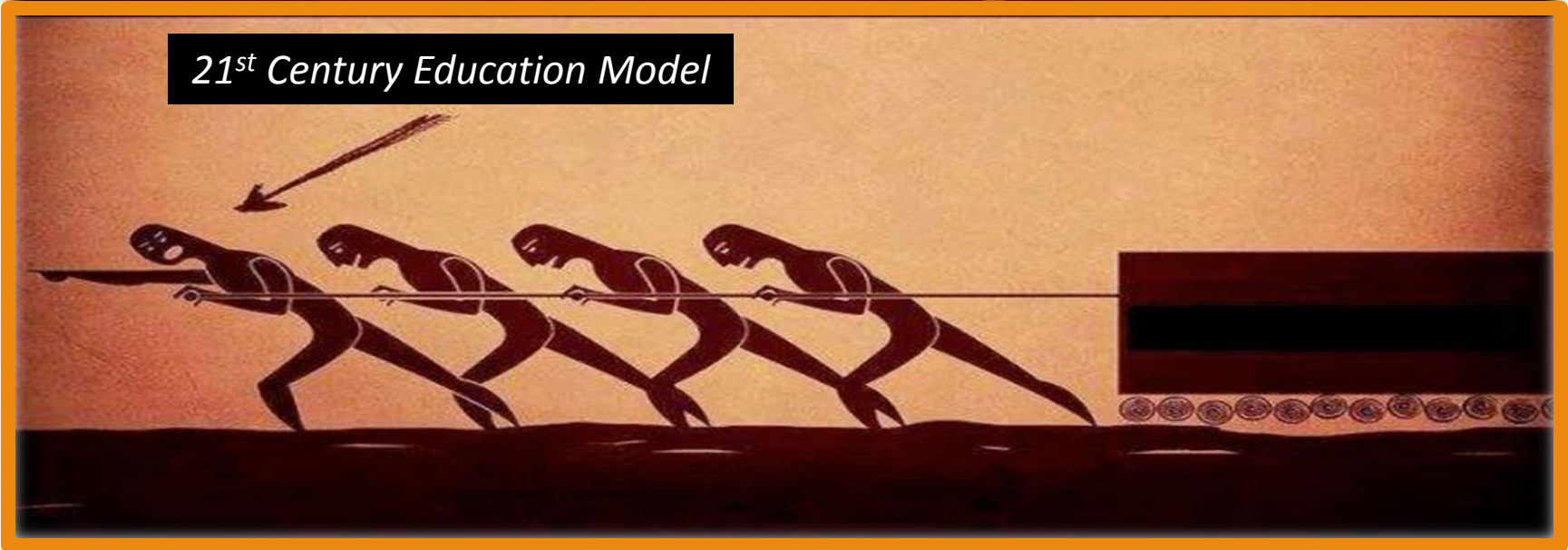
- Getting and keeping the attention of students is critical

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Old Education Models



21st Century Education Model



Uber

The world's largest taxi company, owns no vehicles.

The world's most popular media owner, creates no content.

Facebook

Alibaba

The most valuable retailer, has no inventory.

The world's largest accommodation provider, owns no real estate.

Airbnb

Something interesting is happening. ~ Tom Goodwin

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Education



The world's best instructors,
use no textbooks

They engage through:

- Hands on learning
- Experiencing learning concepts
- Simulate the outcomes of real life
- Change the way things are done
- They involve and empower

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Today's Welding Scene

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WELDING TRENDS = SKILLS GAP

2016 & BEYOND

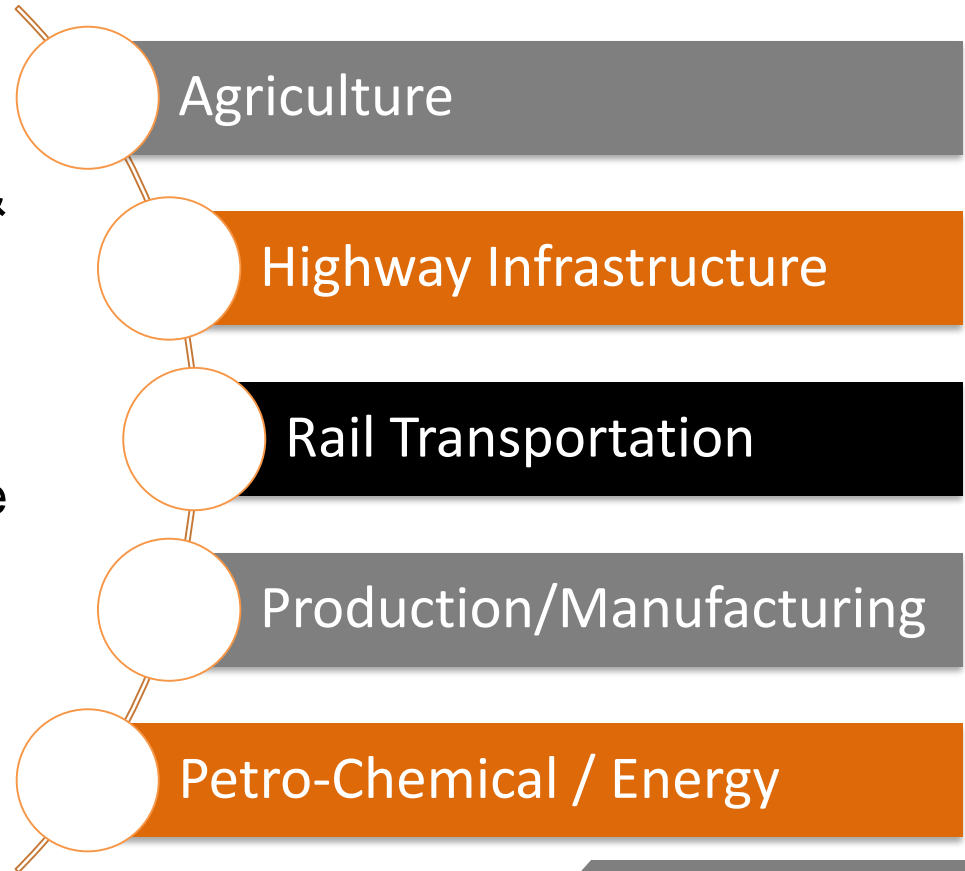
The Industry Facts:

- **450,000 workers** are needed to fill the demands of fabrication & construction industries¹
- **81% of manufacturers** polled reported they can't find enough skilled workers according to the *National Association of Manufacturers*²

1. U.S. Department of Labor (2014).

2. Manufacturing Institute (2011). *Boiling Point? The skills gap in the U.S. manufacturing.*

Five Areas of Welding Growth:



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WELDING

ADDRESS THE SKILLS GAP WITH THIS IN-DEMAND SKILL

"With welders retiring at twice the pace of new welders coming into the field, it's anticipated that in the years to come, we will have a significant shortfall of qualified welders."

By 2025 there will be a need for **400,000** replacement and new welding professionals



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Today's high school welding lab

8 – welding booths per school on average

22 – average number of students/class

33% – students with cognitive disabilities

- Instructors are trained as CTE educators
 - May not be specified disciplines (like welding)
- Lack instructional materials
- Classroom management can be an issue

Using Welding Simulation to Enhance Learning

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RealCareer Welding Solutions

The 21st Century Welding Training Method

SIMULATE

REPLICATE

EVALUATE



guideWELD^{VR}

Virtual Reality Welding Simulation



guideWELD^{LIVE}

Real Welding Guidance System



**BEND TESTER &
WELD DEFECTS KIT**

Inspection Kits

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guideWELD^{VR}

Hardware + Software + Curriculum

- Technique guidance
- Technique assessments
- GMAW & SMAW available
- Three levels of difficulty
(Novice, Intermediate, Advanced)
- Teacher customizable
- Local install / no licenses



\$4,900.00/unit with one welding gun
\$6,400.00/unit with GMAW & SMAW
guns

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Virtual Reality Integrated Weld Training

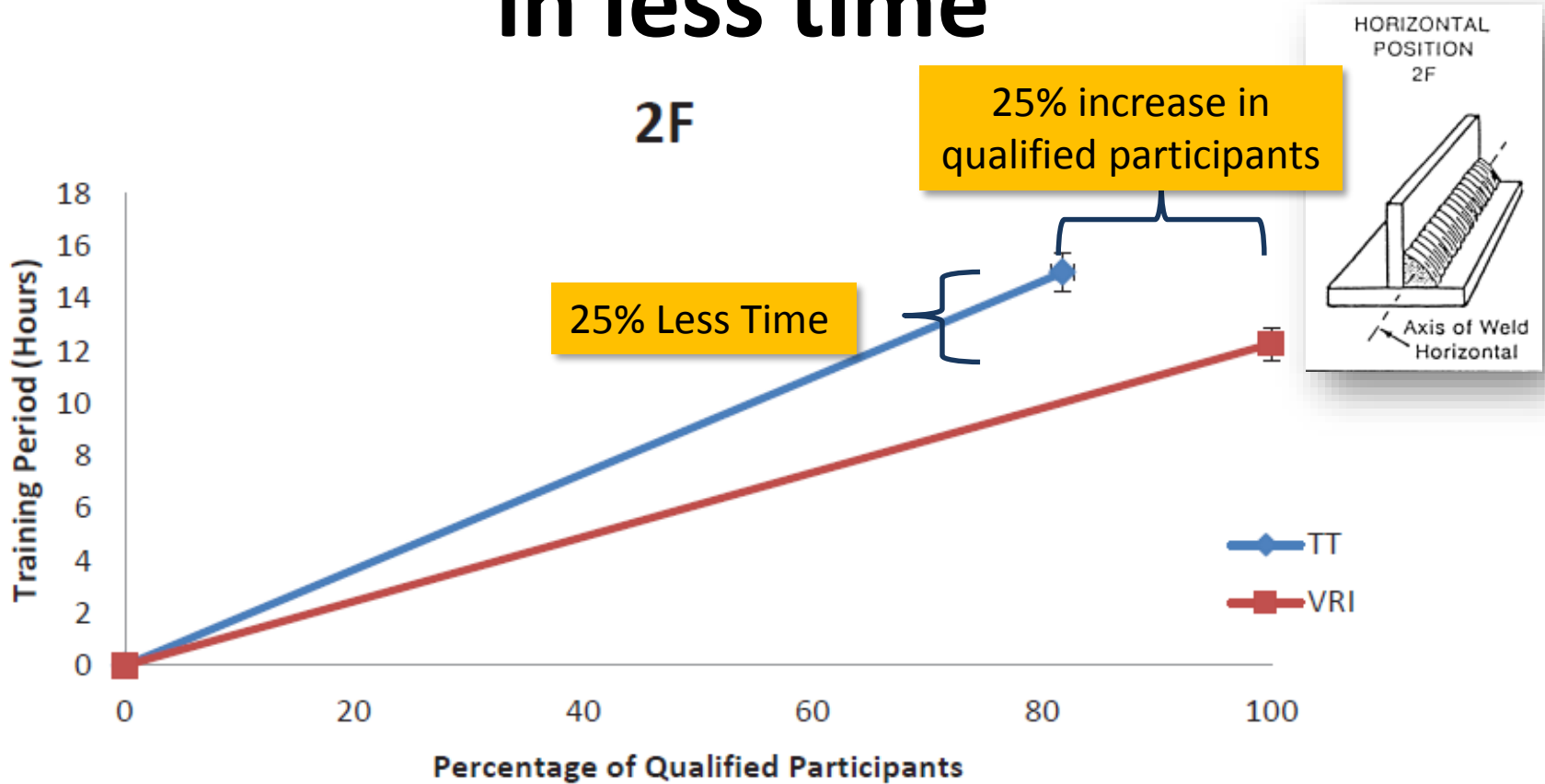
- Study by Iowa State University
- Dept. of Industrial and Manufacturing Systems Engineering
- by Richard Stone, Ph.D.

Virtual Reality Integrated Weld Training
A scientific evaluation of training potential, cost effectiveness and implication for
effective team learning.

Richard T. Stone^{1,2}, Kristopher Watts¹, Peihan Zhong¹
¹Department of Industrial and Manufacturing Systems Engineering, ²Department of Mechanical
Engineering, Iowa State University

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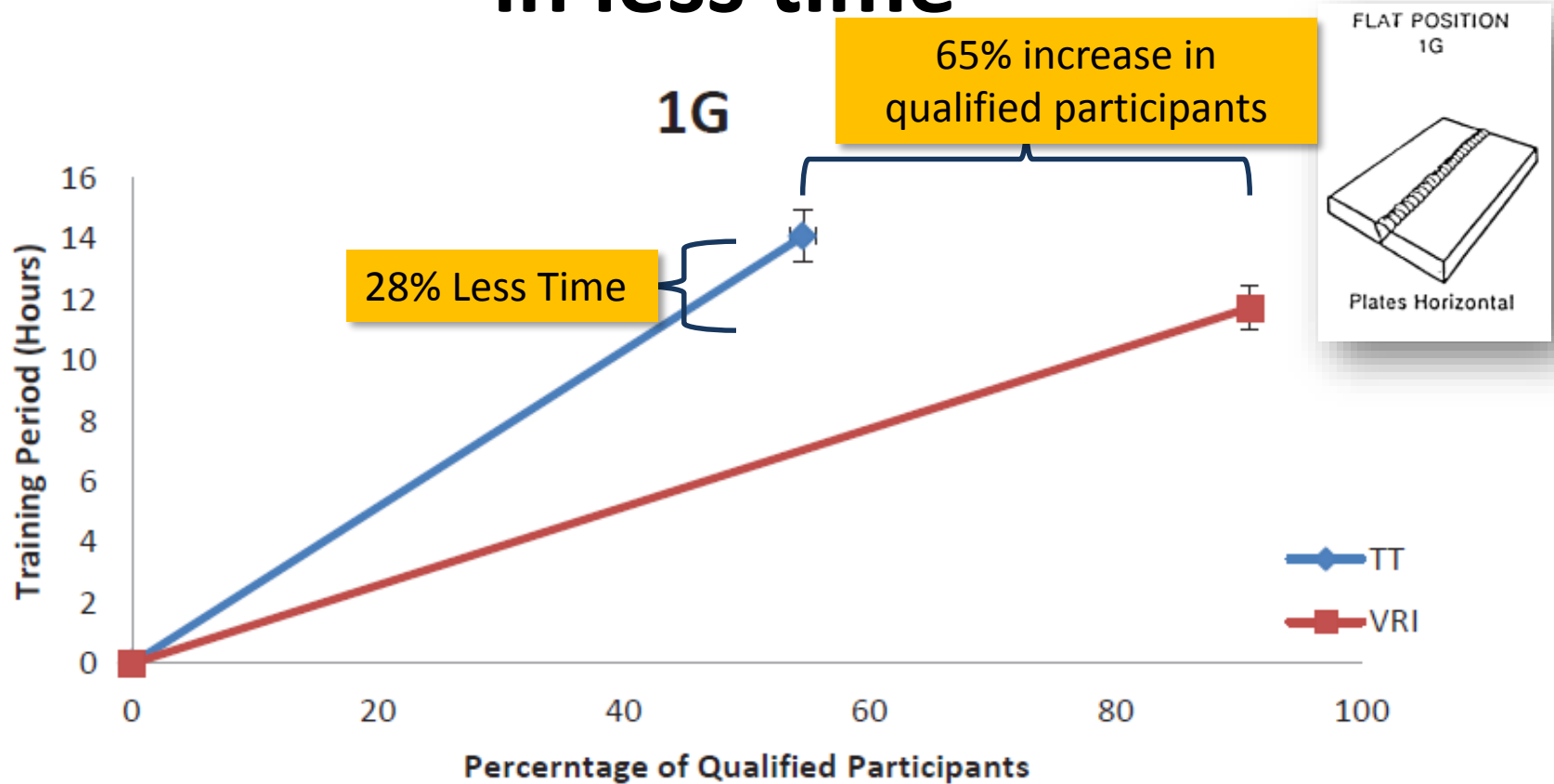
Simulators create more welders in less time



1. Stone, R., Watts, K., Zhong, P., & Wei, C. (2011). Physical and cognitive effects of virtual reality integrated training. *Human Factors*, 53(5), 558-587. Retrieved from <http://connection.ebscohost.com/c/articles/66816988/physical-cognitive-effects-virtual-reality-integrated-training>

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Simulators create more welders in less time



1. Stone, R., Watts, K., Zhong, P., & Wei, C. (2011). Physical and cognitive effects of virtual reality integrated training. *Human Factors*, 53(5), 558-587. Retrieved from <http://connection.ebscohost.com/c/articles/66816988/physical-cognitive-effects-virtual-reality-integrated-training>

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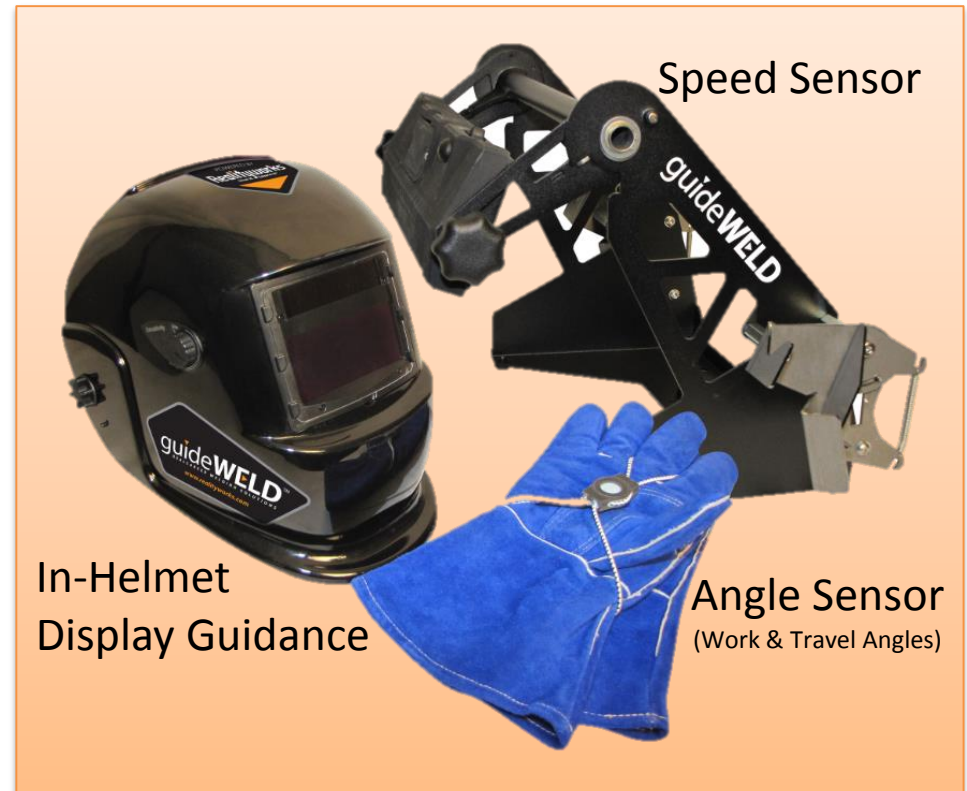
...And with less cost

***“welding simulation has decreased
our consumable and welding
costs by about **70%** for
our program.”***

George Karr,
Welding and Technology Instructor
Hollenstein Career & Technology Center, Fort Worth, TX

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guideWELD[®]LIVE



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guideWELD[®] LIVE

- Real time corrective feedback in every welding booth for MIG & STICK
- Feedback comes from nine default WPS's with customization available.
- Guidance on proper technique
 - Work Angle
 - Travel Angle
 - Speed

COST: \$6,500.00/unit



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RealCareer™ Weld Defects Kit

Visual inspection training

- Teach students the most reoccurring visual defects and discontinuities

Train how to identify defects

- Be able to correct the defects by knowing what the issue is

Reduce future defect issues

- Understand causes of defects through welder technique or welding machine



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RealCareer™ Weld Defects Kit

Kit includes:

- 1 Quality weld model
- 12 Weld defect models
- Weld effect definition insert
- Instructor Guide
- Case for all welding models
- Weld Defects Curriculum (Online)
- 10 Sets of student flash cards
- 5 Classroom posters



COST: \$995/unit

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RealCareer™ Bend Tester

Train Welding Qualification

- Better prepare students for becoming certified welders by practicing guided bend testing

Identify Qualification

- See the true quality of welding ability and validate welds through destructive weld testing and proper procedures.

Train how to:

- Prepare your metal for testing
- Proper welding skills for testing
- Cut & Bend your metal for qualification testing
- Understand if your weld would pass qualification specifications



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RealCareer™ Bend Tester

Product Includes:

- Guided Bend Tester Complies with AWS D1.1 code
- 3 plunger sizes & 3 Roller Settings
 - ½, 1, 1 ½ inch
- 2 Bend Testing Posters
- Curriculum (8 Lessons)
- 8 ton jack
- 1 year warranty



COST: \$2,500/unit

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RealCareer™ Employability Skills

Curriculum:

- Teach a complete unit on employability skills
- Generate real-life discussions

Lessons Include:

- Problem Solving & Time Management
- Interviews & Work Ethic
- Self-Confidence & Stress Management

Product includes:

- 19-lesson Teacher Guide
- 19 Career Workplace Scenario Cards
- Set of 20 Student Workbooks
- 33 Presentation slides



COST: starting at \$499

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Live Welding Booths guideWELD® LIVE real welding guidance system

- Provide in-helmet instruction for consistent technique during live Stick and MIG welding
- Enables self-learning through immediate technique correction
- Build welders' confidence and reduce classroom management concerns



Destructive Weld Testing RealCareer™ Bend Tester

- Prepare welders to conduct and qualify welds
- Teach welders how to correct defects when welding



Visual Weld Inspection RealCareer™ Weld Defects Kit

- Inspect common weld defects and discontinuities
- Teach welders how to correct defects when welding



Welding Simulation Lab guideWELD® VR welding simulator

- Engage users in a safe, virtual Stick and MIG welding environment
- Advance basic welding skills and build correct muscle memory techniques
- Save on classroom consumables

Classroom Setup Example

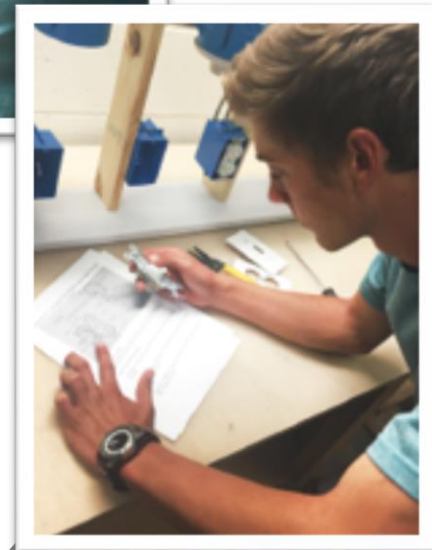
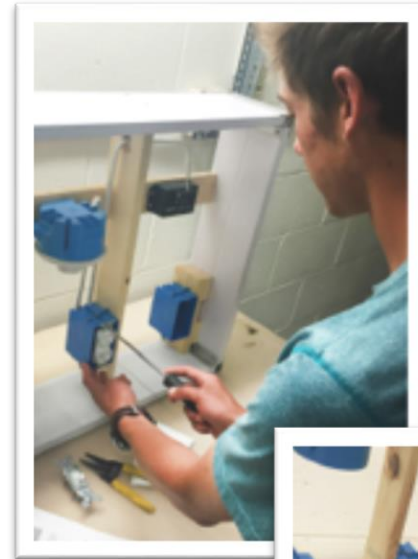
This classroom mockup illustration was created only as a visual example (scale, models and layout are generic representations). Implement these welding educational tools into your program using the following information as a guide.

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RealCareer® Electrical Wiring Kit

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RealCareer™ Electrical Wiring Kit



Use the RealCareer Electrical Wiring Kit to:

- Demonstrate proper wiring skills on a portable Wall Panel
- Provide hands-on practice wiring common electrical circuits
- Safely identify issues at a glance with the Assessment Kit

Curriculum topics covered:

- 16 exercises for skill development
- Electrical wiring safety
- Basic wiring skills
- Introductory electrical theory
- Outlet, light, and switch circuits
- Use Assessment Kit to assess proper wiring
- Introduce standard electrical symbols

\$599.00 SKU: 57010201



Breakout Box



Socket Test Adapter (2)

LIGHT SOCKET TESTER

LIGHT SOCKET RESULTS

KEY

- CORRECT
- BOTH TERMINALS OPEN
- HOT TERMINAL OPEN
- NEUTRAL TERMINAL OPEN
- HOT/NEUTRAL SWAPPED
- HOT CONNECTED TO BOTH TERMINALS
- GROUND CONNECTED TO NEUTRAL TERMINAL
- NEUTRAL CONNECTED TO BOTH TERMINALS
- GROUND CONNECTED TO HOT TERMINAL

CONNECTOR

OUTLET TESTER

OUTLET RESULTS

KEY

- CORRECT
- ALL TERMINALS OPEN
- HOT TERMINAL OPEN
- NEUTRAL TERMINAL OPEN
- GROUND TERMINAL OPEN
- HOT AND NEUTRAL TERMINAL MISWIRED
- HOT AND GROUND TERMINAL MISWIRED
- NEUTRAL AND GROUND TERMINAL MISWIRED
- MULTIPLE OPENS
- MULTIPLE HOTS, NEUTRALS OR GROUNDS

CONNECTOR

Assessment Panel

Electrical Components

Wall Panel Demonstrator includes:

1. RealCareer Wall Panel Demonstrator
2. Electrical Wiring Components:
 - (2) Single Pole Switches
 - (2) 3-Way Switch
 - (3) 15A Duplex Receptacles
 - (2) Ceramic Lamp Holders
 - (1) Ceramic Lamp Holder, with pull chain
 - (20 feet) 14-2 NM-B w/Ground Wire
 - (13 feet) 14-3 NM-B w/Ground Wire
 - (25) Standard Wire Connectors
 - (1) Roll Black Electrical Tape
 - (2) Single gang outlet wall plate
 - (2) Single gang switch wall plate
 - (1) Double gang switch wall plate



Lessons	Title
1	Safety – Personal safety, personal protective equipment, circuit safety, end user safety
2	Electrical Principles – Current, Voltage, Series and Parallel Circuits, and Power
3	Basic Wiring Skills – the home electrical system, fixtures, wire, reading prints, and troubleshooting
	Exercises (with Electrical Wiring Kit accessories)
1	Wiring a single outlet
2	Wiring two outlets in different boxes
3	Single-Pole Switch controlling a single light
4	Single Pole Switch controlling two lights
5	Two Single Pole Switches controlling two lights
6	How to wire outlet, light with pull chain – power through outlet
7	How to wire a single pole switch, light, and outlet using 14-3
8	How to wire Outlet and Switch in double gang box with a light in another box, power from light
9	How to wire 3-way switches with 1 light
10	How to wire 3-way switches with 1 light, power through light
11	How to wire 3-way switches with 1 light, with power entry through both switches first
12	How to wire 3-way switches with 1 light, with power entry through light first then switches in series
	Enhancement Exercises (extra wiring accessories needed)
1	<i>How to wire two single-pole switches with 2 lights, with power entry through a light first</i>
2	<i>How to wire 3-way switches with 2 lights, with power entry through both switches first</i>
3	<i>How to wire 3-way switch with 2 lights and 2 outlets, power through switch</i>
4	<i>How to wire a split-circuit outlet</i>

Ways our tools help CTE

- **Recruit, develop interest, provide opportunity, & train skills**
- **Manage expanding need for skilled workers**
 - pre-qualify students
 - Extend the “shop” to the lab setting allowing for more training resources
 - Leverage technology to provide real-time feedback and assessment
- **Increase skill development while reducing cost & training time**
 - Customer with 10 simulators has saved up to 70% of consumable costs by adding simulators
- **Leading technology is an attractive community outreach strategy too...**
 - Gain support for programs
 - Show the value of CTE
 - Attraction for/to industry partnerships

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Animal & Plant Science Models

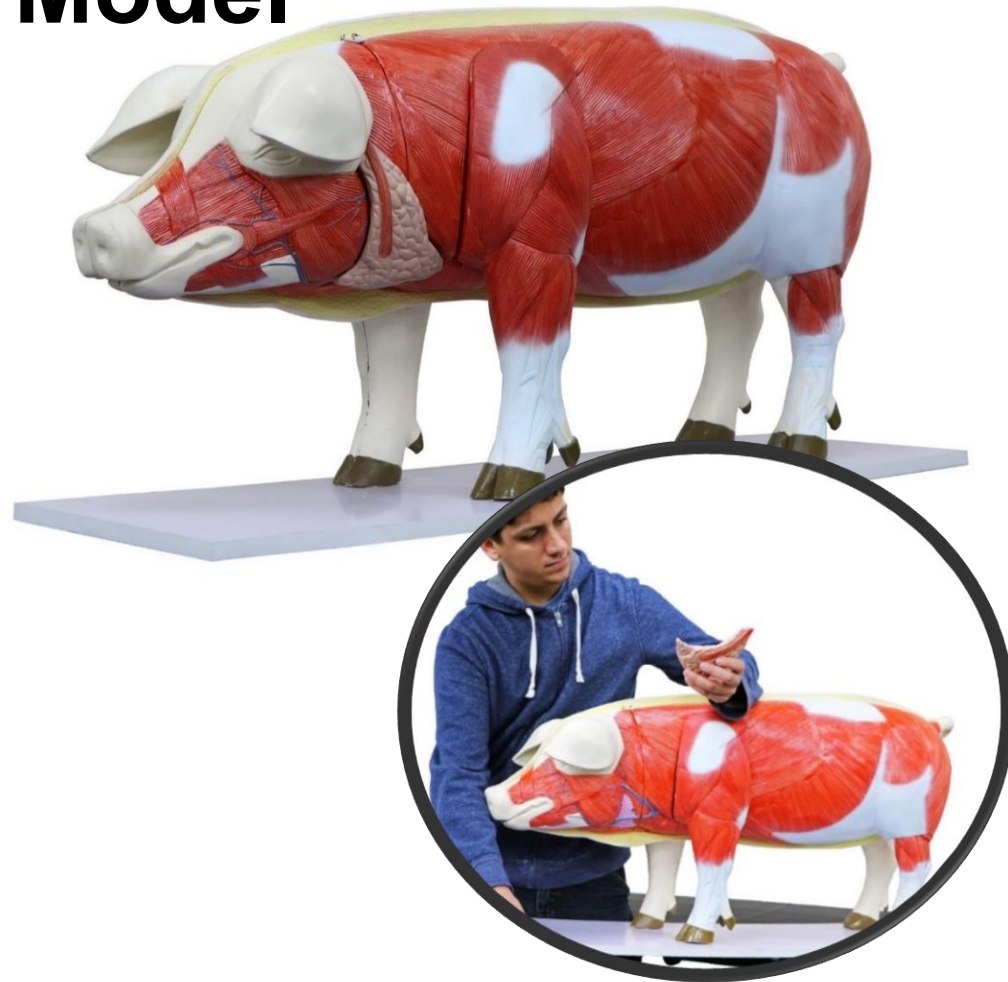
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“Priscilla” the Pig Model

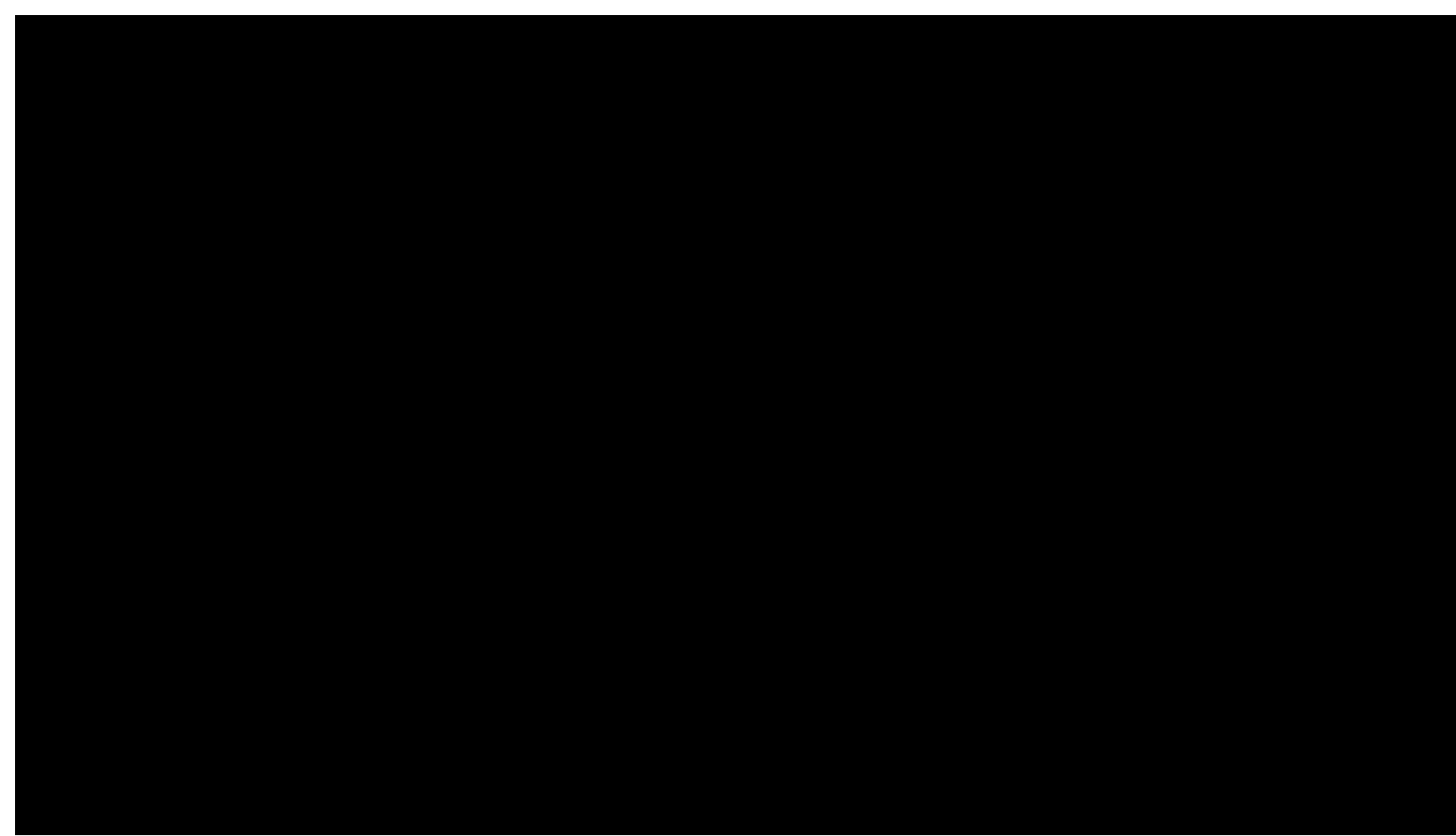
- Pig model with removable features
 - Internal and external anatomy of the pig
 - Cross - sectional split for internal organ viewing
 - Includes reproductive, digestive, and nervous systems

Removable parts: 17

Dimensions: 10”x19”x40”



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“Claire” the Cow Model

- Cow model with removable features
 - Internal and external anatomy of the cow
 - Cross - sectional split for internal organ viewing
 - Includes reproductive, digestive, and nervous systems

Removable parts: 13

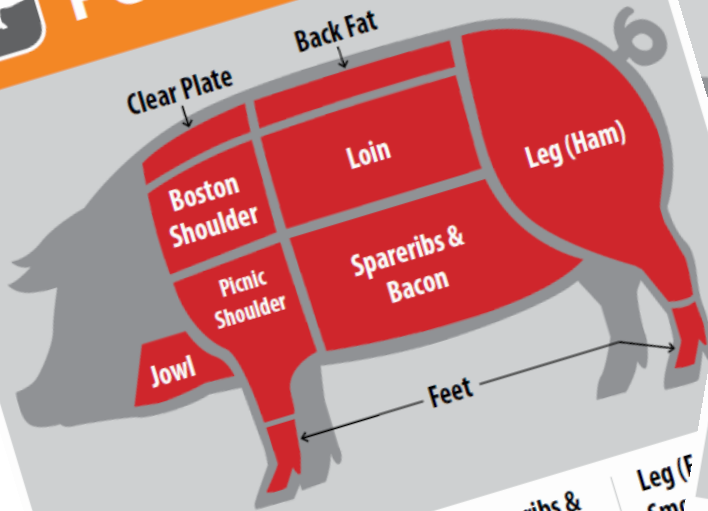
Dimensions: 10”x21”x33.5”



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Agriculture PORK CUTS



Boston Shoulder

- Cubed Steak
- Pork Cubes
- Smoked Shoulder Roll
- Blade Steak
- Blade Boston Roast
- Boneless Blade Boston Roast

Picnic Shoulder

- Fresh Arm Picnic
- Smoked Arm Picnic
- Arm Roast
- Ground Pork
- Arm Steak
- Sausage (Links or Rolls)
- Fresh Hock
- Smoked Hock
- Neck Bones

Loin

- Blade Chop
- Rib Chop
- Loin Chop
- Sirloin Chop
- Cubed Steak
- Butterfly Chop
- Top Loin Chop
- Sirloin Cutlet
- Country-Style Ribs
- Back Ribs
- Smoked Loin Chop
- Canadian-Style Bacon
- Boneless Top Loin Roast
- Tenderloin
- Blade Loin
- Center Loin
- Sirloin

Spareribs & Bacon (Side)

- Spareribs
- Slab Bacon
- Salt Pork
- Sliced Bacon

Clear Plate

- Lard

Back Fat

- Lard
- Back Fat

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Leg (F)

- Brisket
- Corned Beef

Chuck

- Boneless Chuck Eye Roast
- Chuck Short Ribs
- Blade Roast or Steak
- Arm Pot Roast or Steak
- Boneless Shoulder Pot Roast or Steak
- Cross Rib Pot Roast
- Beef for Stew
- Ground Beef

Fore Shank & Brisket

- Shank Cross Cuts
- Beef for Stew
- Fresh Brisket
- Corned Brisket

Rib

- Rib Roast
- Rib Steak
- Rib Steak, Boneless
- Rib Eye Roast or Steak

Short Plate

- Short Ribs
- Skirt Steak Rolls
- Beef for Stew
- Ground Beef

Short Loin

- Top Loin Steak
- T-Bone Steak
- Porterhouse Steak
- Boneless Top Loin Steak
- Tenderloin Roast or Steak

Sirloin

- Pin Bone Sirloin Steak
- Flat Bone Sirloin Steak
- Wedge Bone Sirloin Steak
- Boneless Sirloin Steak
- Tip Steak or Roast
- Tip Kabobs

Flank

- Ground Beef
- Flank Steak
- Beef Patties
- Flank Steak Rolls

Round

- Round Steak
- Heel of Round
- Top Round Steak
- Boneless Rump Roast or Steak
- Cubed Steak
- Eye of Round
- Ground Beef
- Tip Steak or Roast
- Tip Kabobs

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“Hattie” the Horse Model

- Horse model with removable features
 - Internal and external anatomy of the cow
 - Cross - sectional split for internal organ viewing
 - Includes reproductive, digestive, and nervous systems

Removable parts: 11

Dimensions: 8”x24”x27”



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“Chippy” the Chicken Model

- Chicken model with removable features
 - Internal and external anatomy of the chicken
 - Cross - sectional split for internal organ viewing
 - Includes reproductive, digestive, and nervous systems

Removable parts: 7

Dimensions: 11”x10”x15”



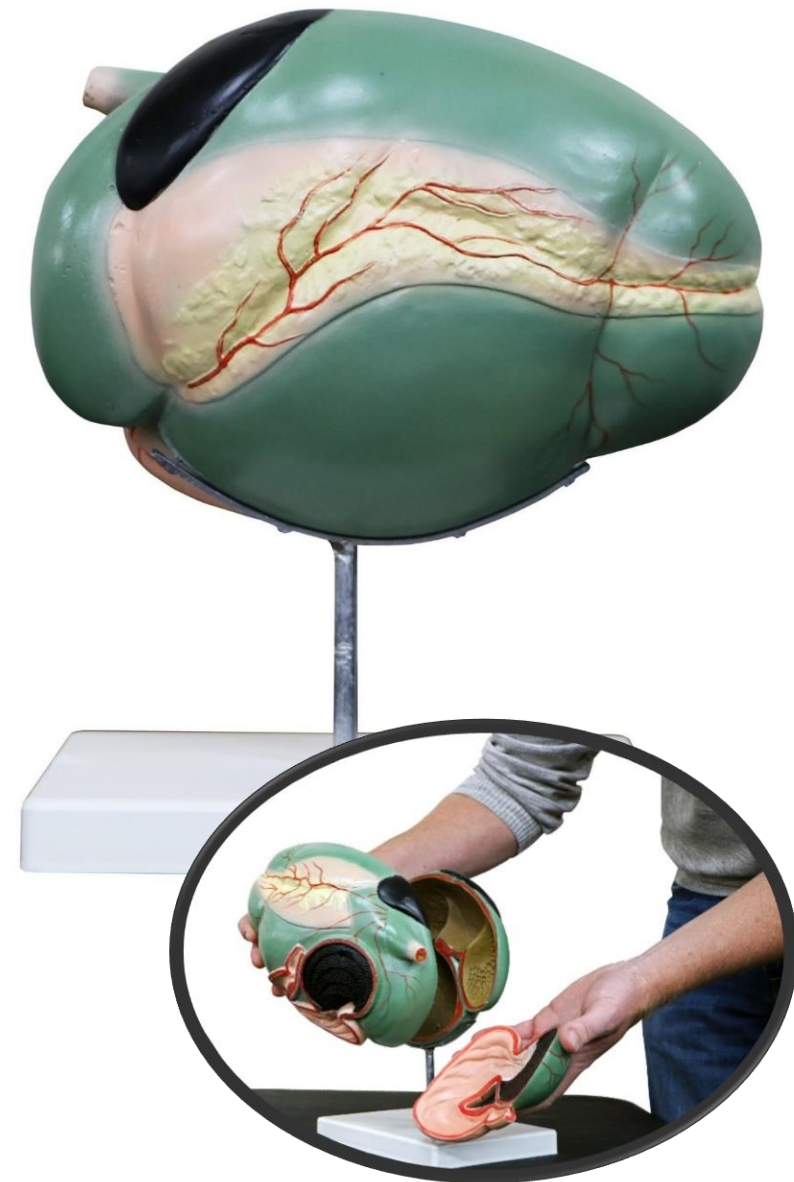
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Cow Ruminant Model

- Cow Ruminant digestive system with removable features
 - Internal and external details of the ruminant system
 - Cross - sectional split of the internal organ viewing
 - Includes detailed texture replica of each of the ruminant compartments

Removable parts: 3

Dimensions: 11"x7"x14"



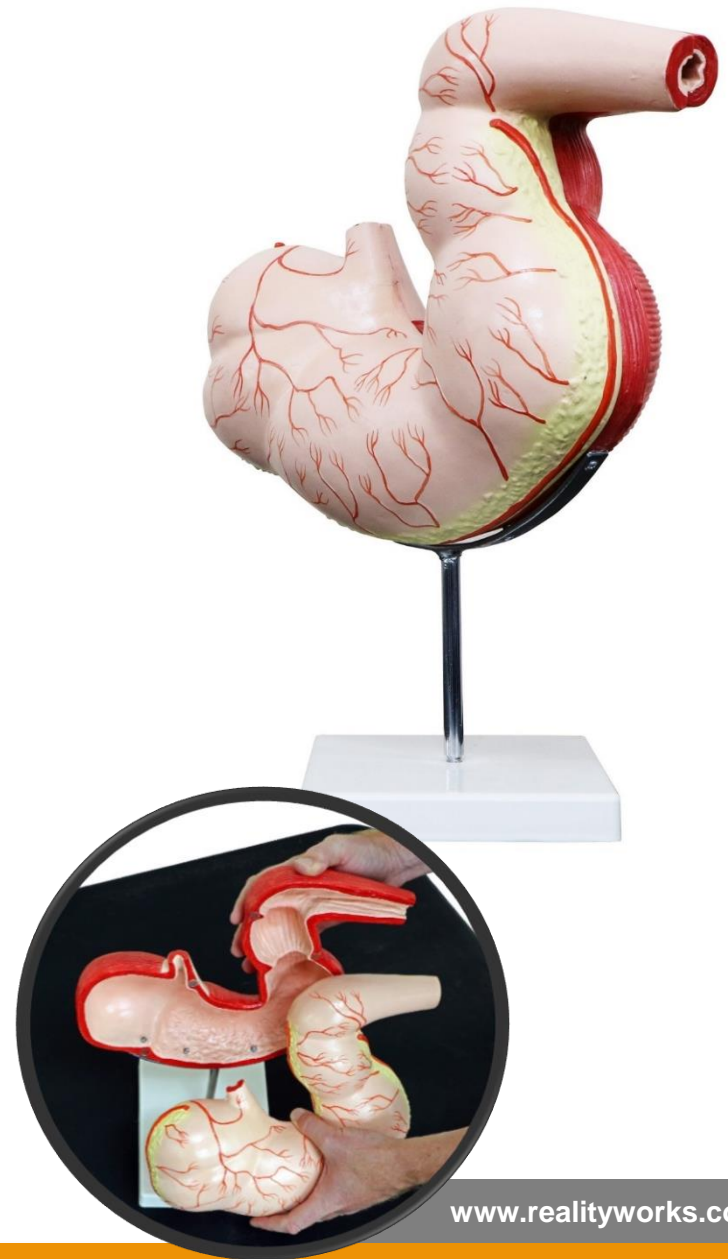
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Horse Stomach Model

- Horse Stomach with removable features
 - Internal and external details of the horse stomach
 - Cross - sectional split for internal organ viewing
 - Includes detailed textured replica of the digestive system

Removable parts: 2

Dimensions: 19"x14"x9"



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Pig Stomach Model

- Pig Stomach with removable features
 - Internal and external details of the pig stomach
 - Cross - sectional split for internal organ viewing
 - Includes detailed textured replica of the digestive system

Removable parts: 2

Dimensions: 11"x7"x15"



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Plant Science Kit

- Learning aids and curriculum resources to engage students in plant science concepts.
 - Plant Science Curriculum
 - Flashcards on Plant ID (60)
 - Models
 - Leaf structure model
 - Plant cell model
 - Plant Science Posters (4)
 - Parts of a leaf/root/stem, Plant ID features (shape) Plant ID (margin, venation), Parts of a flower



Plant Science Curriculum



Lesson 1 – Introduction to Plant Science

Lesson 2 – Plant Cells – parts of a cell, plant parts

Lesson 3 – Leaves, Roots and Stems – parts of leaves/roots/stems

Lesson 4 – Flowering plants – parts of a flower

Lesson 5 – Plant identification features – shape, margin, venation

Lesson 6 – Photosynthesis, Respiration and Transpiration – seeds, germination and photosynthesis/respiration/transpiration

Lesson 7 – Career exploration in horticulture, agronomy, greenhouse, nursing management and plant research

Dicot Flower Model

- Learning aid that allows users an up close understand of the parts of a flower
 - Real-life Replica
 - Cross-sectional split for plant system viewing
- Removable parts: 8
- Dimensions: 12" x 5" x 8"



Dicot Stem Model

- Oversized plant stem model that allows user to gain great in-depth knowledge of the inner workings of the plant systems.
 - Cutaway view of the plant stem
- Removable parts: None
- Dimensions: 10"x21"x33.5"



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Tell me and
I'll forget.

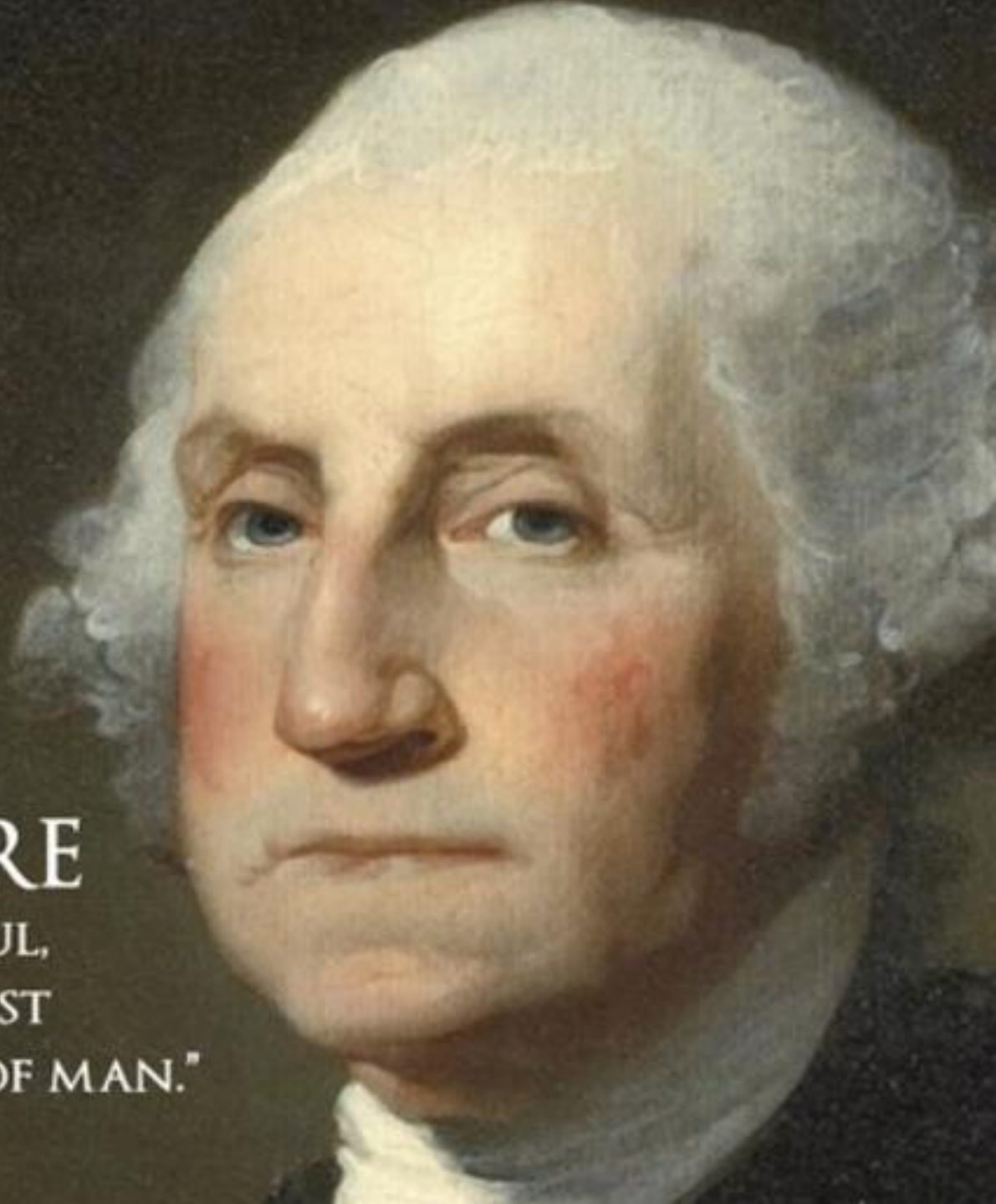
Show me and
I may remember

Involve me and
I will learn.

Use learning
aids that
engage and
involve your
students!



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“AGRICULTURE
IS THE MOST HEALTHFUL,
MOST USEFUL AND MOST
NOBLE EMPLOYMENT OF MAN.”
-GEORGE WASHINGTON

For more information please contact Realityworks, Inc.
through email at information@realityworks.com
or call toll free at 800.830.1416

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