

PATHWAY TO THE SKILLED TRADES



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***Survey Asks:
What program do you
teach?***



***Survey Asks:
Do you teach a skilled
trade?***



Survey Asks:
Do your students explore
apprenticeships?



***Survey Asks:
Do you assist your
students in obtaining an
apprenticeship***



***Survey Asks:
Do you know the path to
apprenticeships?***

Presentation Objectives

You will be able to:

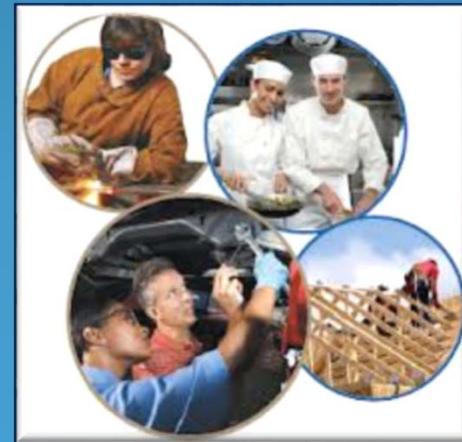
- ***Describe the apprenticeship system and how it works***
- ***Explain why apprenticeships should be considered***
- ***Identify the skills required to be an apprentice***
- ***Discuss the importance of math in the skilled trades***
- ***List a number career opportunities in the skilled trades***

***The apprenticeship
system and how it
works!***

What is an apprenticeship?



“Apprenticeship is a system of training that combines on the job and classroom learning in order to acquire journey person status.”



Registered apprenticeship is “ A national training system that combines paid learning, on-the-job and related technical and theoretical instruction in a skilled occupation. ”



Steps to an Apprenticeship

1. High school diploma or GED, with transcript
2. Research and Identify a trade of interest
3. Determine if there are openings in the trade
4. Apply for the apprenticeship with a company or union
5. Take any required test
6. Complete an interview
7. Begin the apprenticeship if chosen

Registered Program Certification

- Journeyperson card
- Recognized nationwide as portable industry credentials



Why become an apprentice?

- Related education / College credit: 576 –700 hrs.
- On-the–job / hands on: 8,000 hrs.
- Usually taught by a skilled trades person at their own facility or, at a Community College
- Credit transfer-2 plus 2 degree



*So why should students
consider being an
apprentice?*



Why become an apprentice?

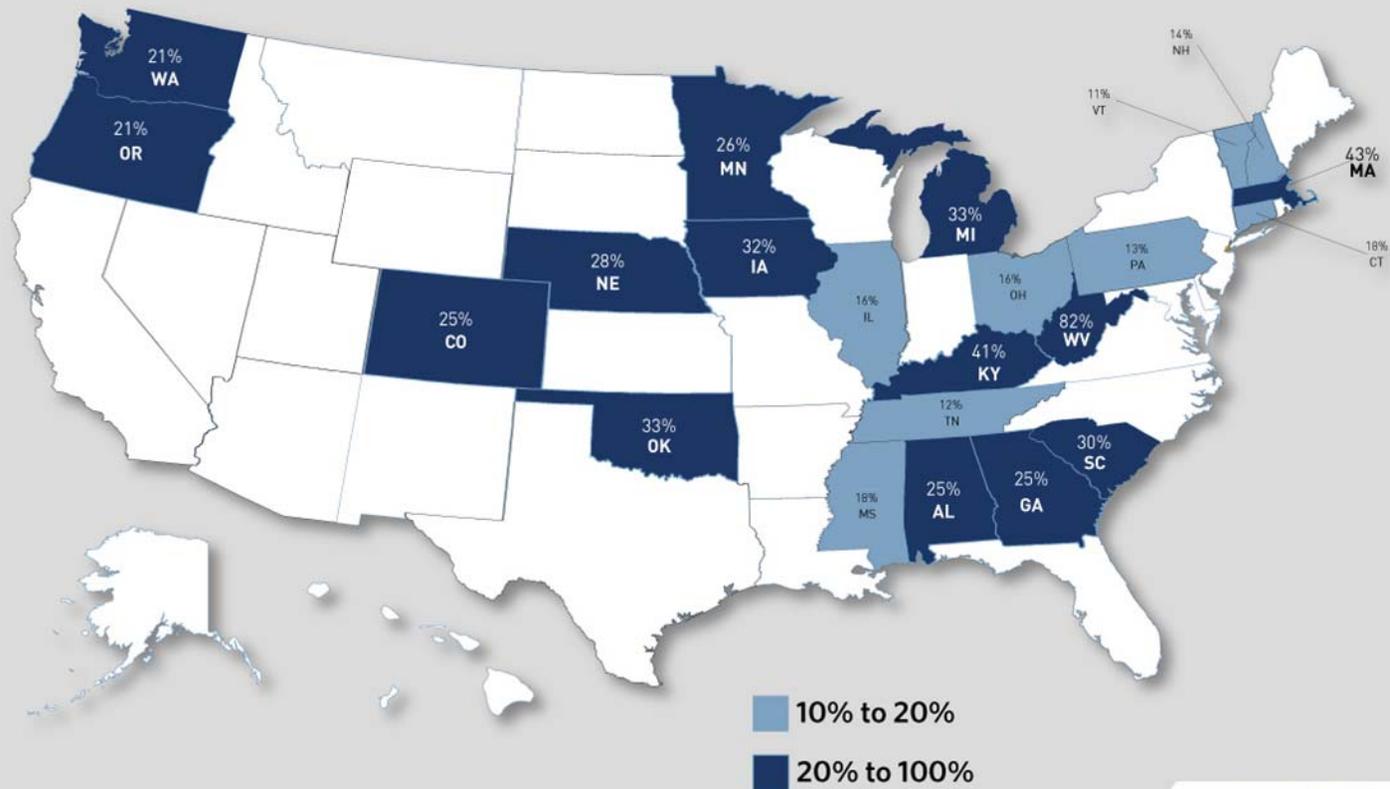
- Approximately 500,000 apprentices nationwide
- Apprenticeships offered in more than 1,000 occupations
- More than 250,000 employers involved in the program

4/22/2010 Office of Apprenticeship



PRESIDENT OBAMA IS PARTNERING WITH STATE AND LOCAL LEADERS TO INVEST IN AMERICAN WORKERS BY EXPANDING APPRENTICESHIPS

14 states have grown apprenticeships by more than 20%



#ReadyToWork

Why become an apprentice?

Today's skilled trades are the hot jobs that are growing and evolving. Advanced manufacturing. IT. Construction. Healthcare. Did you know skilled trades:

- Are some of the most in-demand jobs posted online? **More than 8,300 skilled trade jobs are currently available in Michigan.**
- Provide opportunities that will continue to grow? **More than 6,700 job openings are expected every year, through 2022.**

Why become an apprentice?

50% to 75% of apprentices earn **\$160,000** during their four to five years of apprenticeship



Starting Journeyperson earn \$45,000 to \$65,000 and with overtime can earn **\$100,000 or more per year**

Why become an apprentice?

Mike Taylor may represent the bridge to America's job skills gap. He went to a 4-year college and then waited tables at a restaurant even as he struggled to pay off college loans.

Two years later, he did what many Americans are doing less and less: he became an *apprentice*.



Why become an apprentice?

A native of Hazlet, NJ, Taylor left New York's St. John's University with **\$75,000 in student loan debt**. He knew that making ends meet while paying off his mountain of debt **wouldn't be feasible on a job waiting tables**. Taylor is now in a 5-year apprentice program at Plumbers Local 1 in Queens, N.Y. Every two weeks, he attends class one day and works nine days -- each of those days, including his class, are paid for by the program. **Taylor makes \$28 an hour. Next year, as his skills improve, he will make \$42 an hour.**



The bridge from High School to Apprenticeship

STRA



***What types of
apprenticeships are
available?***

Manufacturing Apprenticeships

- Auto/Truck Repair
- Die Designer
- Die Maker
- Draftsman
- Electrician
- Machinist
- Machine Repair
- Millwright
- Model Maker
- Mold Maker
- Pattern Maker
- Pipe fitter
- Stationary Engineer
- Sheet Metal Worker
- Tin Smith
- Tool Designer
- Tool Maker
- Welder

Construction Apprenticeships

- Asbestos Worker
- Boilermaker
- Bricklayer
- Carpenter
- Carpet/Latherer/Floor Layer
- Cement Mason
- Construction Craft Laborer
- Drywall Finisher
- Electrician
- Elevator Constructor
- Glaziers/Glass Worker
- General Laborer
- Iron Worker/Structural Steel
- Millwright
- Operating Engineer
- Plasterer
- Painter/Drywall Finisher
- Plumber/Pipe fitter
- Refrigeration & AC
- Roofer/Waterproofer
- Sheet Metal Worker
- Sprinkler Fitter
- Tile, Marble & Terrazzo Mason

New Apprenticeships

- Energy
- Health Care
- Information Technology
- Social Services
- Environmental
- Transportation
- Aerospace
- Biotechnology
- Finance
- Geospatial
- Green Jobs
- Military
- Food Service



What is the advantage of being an apprentice?



Why become an apprentice?

"Apprenticeship is the other college, except without the debt," U.S. Secretary of Labor Tom Perez told CNNMoney.



Traditional 4 year college vs. 5 year Apprenticeship Degree

Years	Wages you make per year in college and 1st year on job	Wages you make per year in average union building trade learning on the job
1	\$0.00	\$ 31,794.00
2	\$0.00	\$ 37,908.00
3	\$0.00	\$ 44,022.00
4	\$0.00	\$ 48,619.00
5	\$40,000.00	\$ 54,724.00
Totals	\$40,000.00 ?	\$ 217,067.00

Based on Apprentice/Journey hours of 1944 per year and wages as of 1/1/2006 (Does not include fringe benefits)

•Your results may vary, no guarantee is implied or expressed

•Data taken from: http://www.sheetmetal-16.org/Cost/cost_comparison.htm

Why become an apprentice?

- Above average pay
- Job mobility
- Career satisfaction
- Possible self employment
- Possible to own your own company
- Good job security-construction jobs can't be sent off-shore



Selling Apprenticeships by Connecting Parents and Students to a Skilled Trades Career

Connecting Parents and Students to a Skilled Trades Career

- Advise parents to encourage their student to consider an apprenticeship
- Not every one needs a four year degree
- Provide clear information about apprenticeship requirements
- Give youth more opportunities to learn about the trades

Connecting Parents and Students to a Skilled Trades Career

- Encourage parents, counselors and teachers to talk positively about careers in the skilled trades
- Outline information on course selection
- requirements that prepare youth for skilled
- trade careers

***What are the “core skills”
needed by an apprentice?***

The core skills all apprentices need to have include:

- ***Math***
- ***Mechanical Reasoning***
- ***Graphic Math-blueprint reading***
- ***Spatial Relations***
- ***Technical Reading***

Can you think of a skilled trade that does not require any math?

- **All trades require basic math skills**
- **Some trades require advanced math**
- **All trades require measurement skills**

Required Basic Math Skills

- Addition
- Subtraction
- Multiplication
- Division
- Fractions
- Decimals
- Story Problems

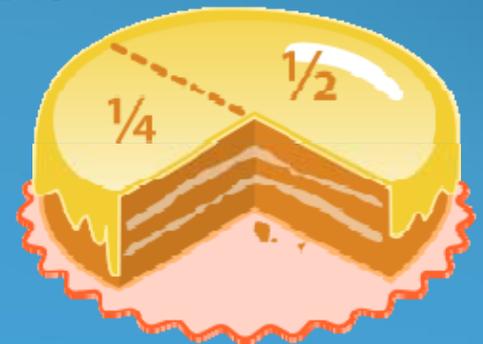


Which of these basic math skills is most important to apprenticeships?

Fractions Are Key To Math Success, New Study Shows

What part of math success comes from knowing fractions? More than you might think, according to a new study that analyzed long-term data on more than 4,000 children...These findings demonstrate an immediate need to improve the teaching and learning of fractions and division,” said University of Michigan researcher Pamela Davis-Kean, a co-author of the study and director of the Center for the Analysis of Pathways from Childhood to Adulthood at the U-M Institute for Social Research.

<http://detroit.cbslocal.com/2012/06/17/fractions-are-key-to-math-success-new-study-shows/>



The Apprenticeship Test

The Apprenticeship Test

The Cast Test-Construction and Skilled Trades Utility Industry. The four areas tested are Graphic Arithmetic, Mechanical Concepts, Reading for Comprehension, and Mathematical Usage. All questions are multiple-choice.

Electrical

Pipefitters

Operating Engineers

Ramsey Tests

Jack Martin & Associates

Fractions and Decimals

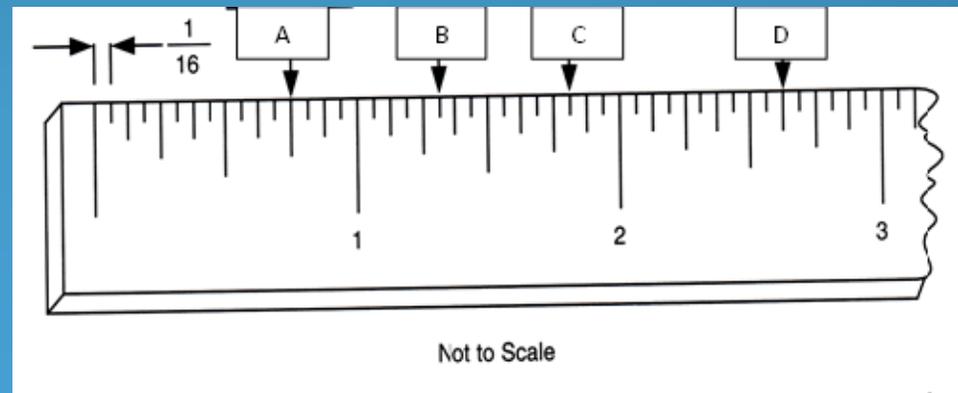
6) Arrange the following socket wrenches in order from largest to smallest:

$\frac{1}{2}$, $\frac{3}{16}$, $\frac{5}{8}$, $\frac{1}{4}$

- a) $\frac{5}{8}$, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{16}$
- b) $\frac{3}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{1}{4}$
- c) $\frac{1}{2}$, $\frac{3}{16}$, $\frac{5}{8}$, $\frac{1}{4}$
- d) none of the above

Measurement Skills

- Read a ruler in both English and Metric units
- Convert from fractions to decimal measurements and visa versa
- Round off measurements accurately



Percents, Decimals & Conversions

If the daily production of a stamping plant is 136,000 parts and the average amount of scrap is 4080 pieces, what percent of the daily production are bad parts?

- a) 1% bad parts
- b) 2% bad parts
- c) 3% bad parts
- d) 4% bad parts

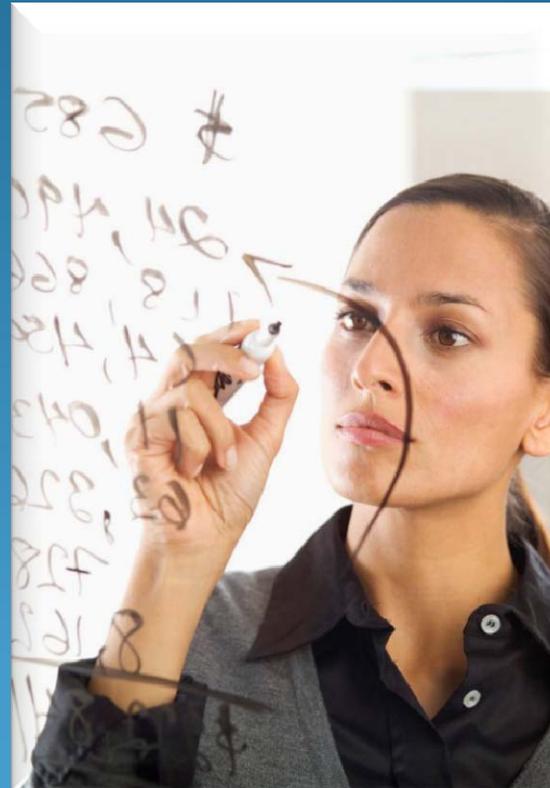
Story Problems

A tabletop is 60 centimeters long by 88 centimeters wide. It is being covered with ceramic tiles that are 2-centimeter squares. How many tiles are needed?

Number of tiles = _____

Potential Advanced Math Skills

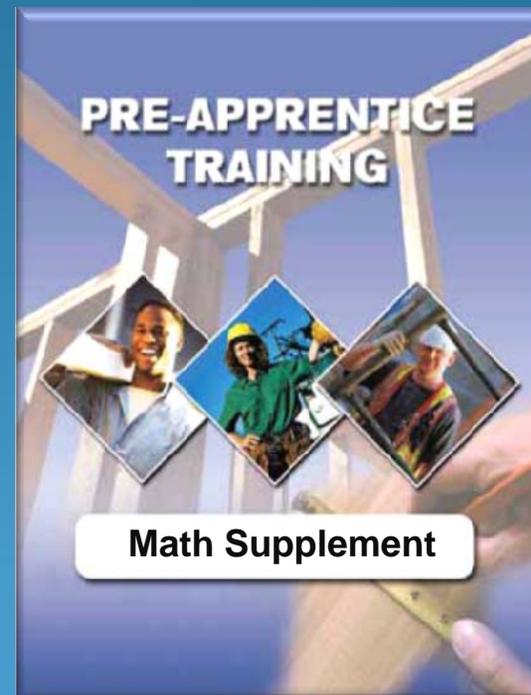
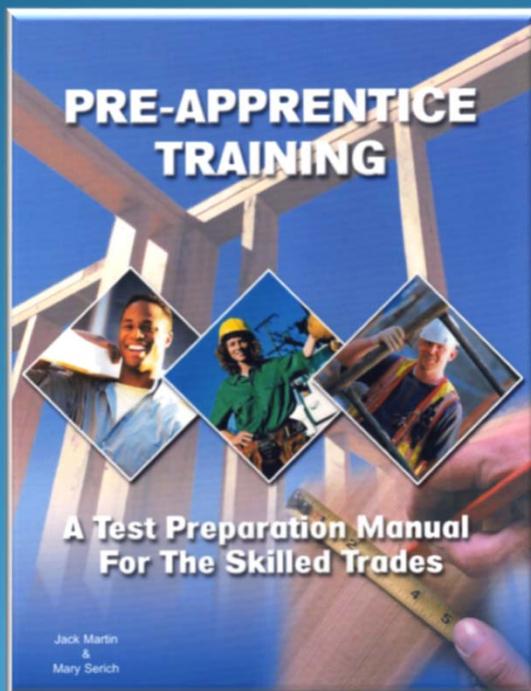
- Graphic Math
- Algebra
- Geometry
- Trigonometry



Preparing for An Apprenticeship Test

Apprentice Readiness

Preparing for An Apprenticeship Test



Does this Book Really Help?



- “After being out of high school for so many years, your book gave me the edge I needed to pass the GM apprenticeship test.”
- Norman Jones, Tool and Die & Electrical Journeyperson

Does this Book Really Help?

“I can't believe how closely your book fits our 8th grade math and science **STEM** curriculum. It clearly shows how math and science are tied together.” **Lorri Carless, Jr. High Math and Science Teacher**

“Your book provides a great hands on approach to the teaching of STEM math and science, especially technical math. Dave Fultz, Former Superintendent of Schools“

Thanks to your book, I scored #1 out of 280 Ford applicants.” - **Skip Plym, Canadian Auto Worker**

“

Does this Book Really Help?

Now being used by
UAW Ford and
UAW Chrysler for their
pre-apprentice training programs



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www.Pre-Apprenticetraining.com

Whole Numbers

1) $2 + 8 + 5 + 7 + 2 + 1 =$

a) 23

b) 24

c) 15

d) none of the above

2) $388 - 99 =$

a) 287

b) 288

c) 289

d) none of the above

3) $800 \times 9 =$

a) 7200

b) 8100

c) 7400

d) none of the above

4) $40 \div 3 =$

a) 13.13

b) 13.03

c) $13 \frac{1}{3}$

d) none of the above

Fractions

Arrange the following socket wrenches in order from largest to smallest:

$1/2$, $3/16$, $5/8$, $1/4$

Reduce to lowest terms: $\frac{34}{38} = ?$

a) $34/38$

b) $17/19$

c) $5/3$

d) none of the above

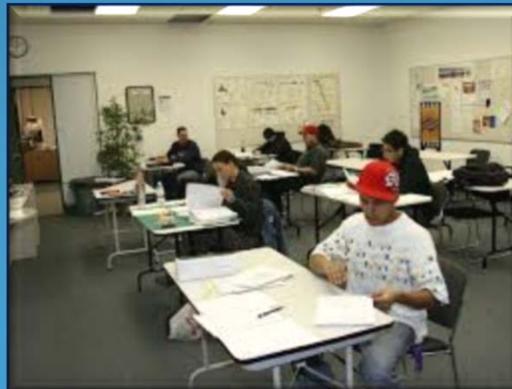
Steps to an Apprenticeship

1. Select an occupation for which you have an aptitude or some previous experience and the physical ability to perform.
2. Find out if you meet the minimum qualifications for that occupation.
3. Decide whether you can work under the required job conditions, some of which may be hazardous, dirty, uncomfortable or otherwise unpleasant.
4. Apply for an apprenticeship either directly to an employer in the occupations, the JAC, UAC, or the appropriate union
5. Take aptitude or other tests where required.
6. If the apprenticeship committee has a waiting list of applicants, determine whether or not you are sufficiently interested in the occupation to wait for an opening, or whether you should seek other employment.
7. Some apprenticeship committees have applicants find their own employment with a firm which participates in the apprenticeship program.

***Most apprenticeships
require a personal interview
and passing a test to enter
an apprenticeship***



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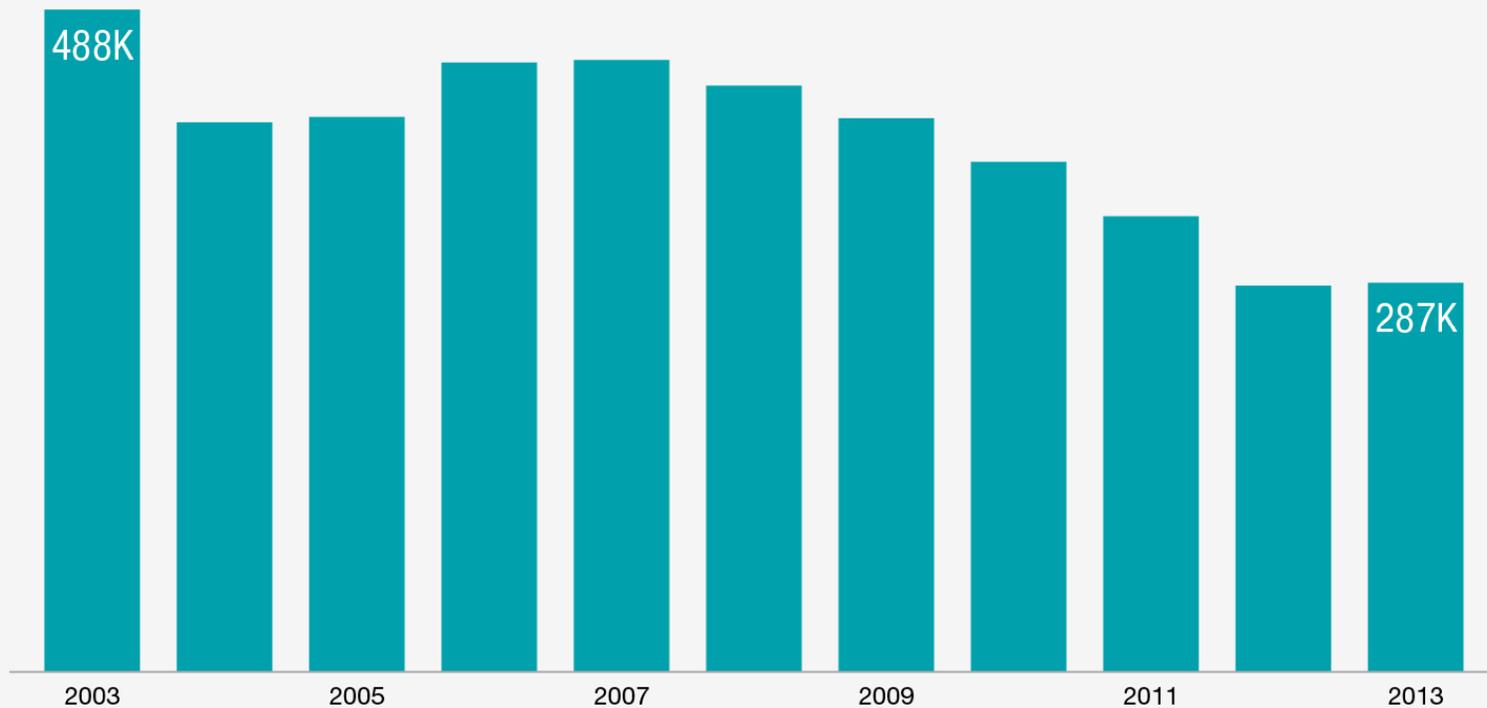


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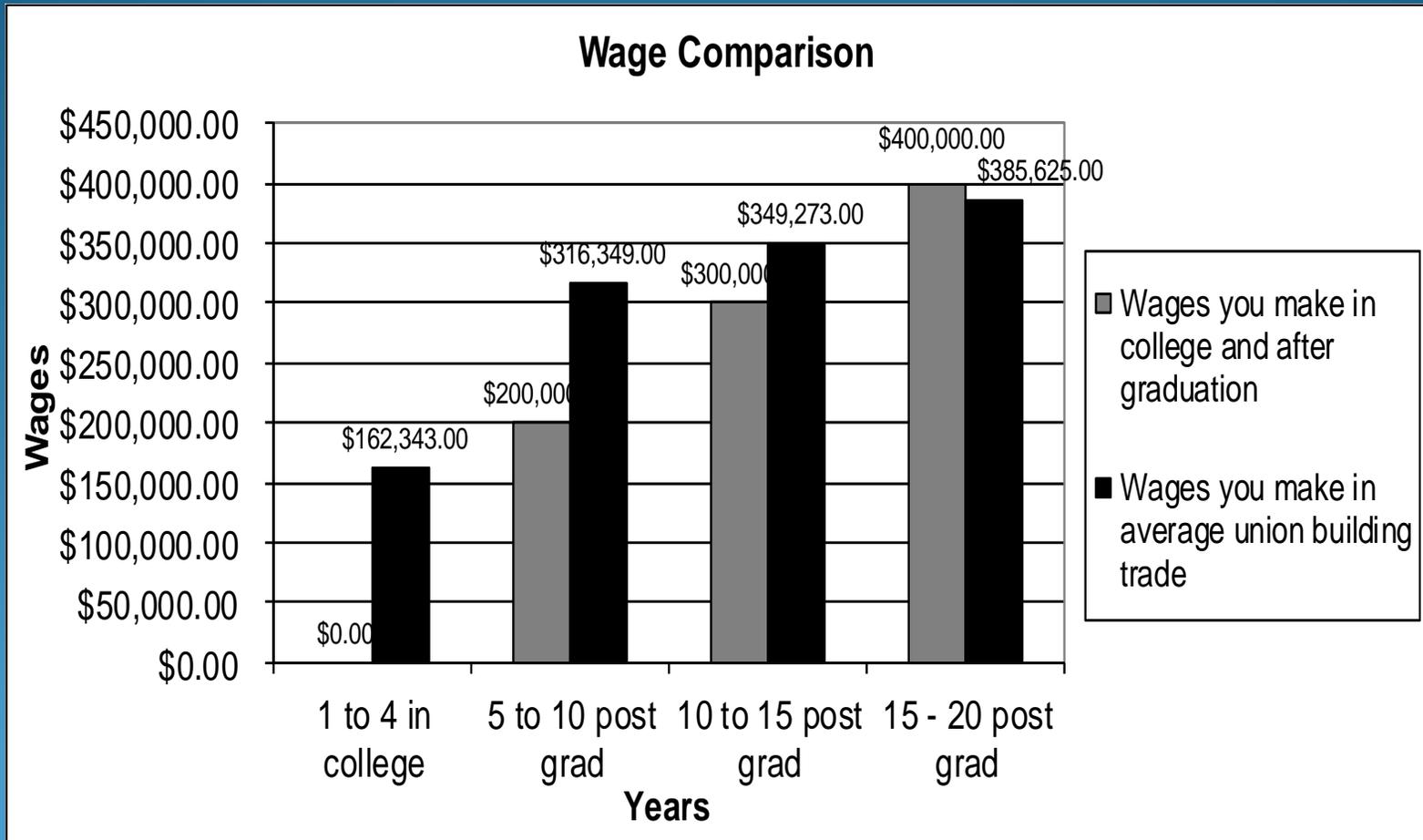
Why become an apprentice?

Number of apprentices in the United States



Source: Labor Department

Earn While You Learn



Why become an apprentice?

STRUCTURED ON-THE-JOB TRAINING Apprentices receive on-the-job training from an experienced mentor for typically not less than one year.

RELATED INSTRUCTION Apprenticeships combine on-the-job learning with technical education at community colleges, technical schools, apprenticeship training schools, provided on-line or at the job site.

REWARDS FOR SKILL GAINS Apprentices receive increases in wages as they gain higher level skills

NATIONAL OCCUPATIONAL CREDENTIAL Registered Apprenticeship programs result in a nationally-recognized credential – a 100% guarantee to employers that apprentices are fully qualified for the job.

Apprenticeship Entry Requirements

(not the same for each state or program)

- At least 18 years, with proof such as birth certificate
- High school diploma or GED, with transcript
- Letters of recommendation
- Committee interview
- Must take a test in most cases
- Willing to complete related study courses and attend classroom instruction
- Willing to abide by the standards and rules of the area apprenticeship committee
- Take drug and alcohol tests

Why become an apprentice?

Apprentices

National Growth Chart



Connecting Parents and Students to a Skilled Trades Career

Skilled Trade Myths

- ***There's No Demand For Skilled Trade Workers***

False! Skilled trade workers represent exactly the types of skills that employers are demanding.

- ***Skilled Trades Are Low Paying***

False! Paying between \$12 and \$34 an hour, skilled trades provide an above average median wage.

Connecting Parents and Students to a Skilled Trades Career

Skilled Trade Myths

- ***Skilled Trades Are Low Skill***

False! On the contrary, skilled trades require rigorous classroom and on-the-job training as well as an understanding of mathematics and complex problem solving.

- ***Skilled Trades Are Dirty and Dangerous***

False! With increased technology, manufacturing and construction jobs have become considerably safer and cleaner.

Fractions and Decimals

Fractions are a good example of, “If you don’t use it you lose it”.

5) Reduce to lowest terms:

a) $34/38$

b) $17/19$

c) $5/3$

d) none of the above

Does this Book Really Help?

“I was very pleased with your book which is used in our Re-Entry Center for Women at the College of Southern Nevada. Our women found your book informative and easy to use.” **N.J. Pettit, Manager, Women's Re-Entry Center**

“After reviewing dozens of textbooks, this is the only one that covered everything a student needs to know in order to pass most apprenticeship entry exams.” - **Steve Dick, Fluid Power Instructor, NSCC**

“Your text books served as the core for Delta Colleges Pre-Apprentice Program and are the recommended text for Michigan's Road Construction and Energy Conservation Apprenticeship Readiness Programs.” **Russell W. Davis, Michigan State Director, Office of apprenticeship for the US Department of Labor**



***Survey Asks:
What is an
apprenticeship?***