

SKILLED TRADE PAYS

GIGI WOLF, FEDERAL RESERVE BANK of KANSAS CITY

TEACHER INTRODUCTION:

This lesson is a complement to the *Opportunity Occupations Revisited: Exploring Employment for Sub-Baccalaureate Workers Across Metro Areas and Over Time* research, as well as the supplementary *Opportunity Occupations Revisited Metro Area Fact Sheets*, all available through the Federal Reserve System's [Investing in America's Workforce website](#). Additional resources can be found on the Federal Reserve Bank of Atlanta's [Center for Workforce and Economic Opportunity website](#). The research, first published in September 2015 and updated in April 2019, focuses on an investigation of middle-skills jobs — often defined as those that require some education and training beyond a high school diploma but less than a four-year degree. These positions are also referred to as opportunity occupations, as cited throughout this lesson. The fact sheets highlight opportunity occupation employment trends in the largest 121 metro areas in the U.S. and were published in April 2017. The content of both the research and fact sheets was developed by Keith Wardrip from the Federal Reserve Bank of Philadelphia, as well as Kyle Fee and Lisa Nelson from the Federal Reserve Bank of Cleveland, based on data from the U.S. Bureau of Labor Statistics (BLS).

This lesson in particular utilizes a summary extracted from the research and five fact sheets tied to cities within the 10th Federal Reserve District. If desired, the fact sheets (Handout 4) can be substituted with fact sheets relevant to the region(s) most relevant to you or your students. All of the available fact sheets, along with related work on opportunity occupations, can be accessed from <https://www.frbatlanta.org/cweo/data-tools/opportunity-occupations-monitor.aspx>. Nationally, research suggests that approximately 22% of total employment consist of opportunity occupations. This lesson introduces students to that segment of the job market, often underexplored, although a significant and growing portion of the labor market.

LESSON DESCRIPTION:

In this lesson, students will explore research and data based on opportunity occupations, or jobs accessible without having to obtain a four-year degree. Students will analyze charts and graphs detailing the scope of opportunity occupations within the United States and through video, meet real-life individuals working in these industries. Students will then investigate a specific opportunity occupation and work collaboratively to construct a visual of what they learned to present to the class.

GRADE LEVEL: 9-12

CONCEPTS: Opportunity occupations, wages, labor market, human capital

OBJECTIVES:

Students will be able to:

1. Summarize their research about an opportunity occupation.
 2. Apply reasoning to support their opinion about opportunity occupations within the labor market.
 3. Analyze research and data about opportunity occupations.
 4. Work collaboratively to examine opportunity occupations.
 5. Compare similarities across several opportunity occupations.
 6. Construct a visual infographic summarizing their work.
 7. Evaluate their own human capital.
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ESSENTIAL QUESTION: HOW DO OPPORTUNITY OCCUPATIONS FACTOR INTO THE LABOR MARKET WITHIN THE U.S.?

TIME REQUIRED: Three class periods (55-60 minutes each) with additional work outside of class

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MATERIALS:

- Handout 1: Opportunity Occupation Research, one per student (5 pages)
 - Handout 1: Opportunity Occupation Research Answer Key
 - Handout 2: Student Assessment (2 pages)
 - Handout 3: Opportunity Occupation Charades
 - Handout 4: Opportunity Occupation Fact Sheets, one per collaborative group (5 pages)
 - Handout 5: Opportunity Occupation Exploration, one per student (1 page)
 - Handout 5: Opportunity Occupation Exploration Answer Key
 - Handout 6: Opportunity Occupation Cards, one per collaborative group (cut apart in advance)
 - Visual 1: Opportunity Occupation Project Guidelines
 - Visual 2: Example
 - Visual 3: Infographic Samples
 - Video series: Opportunity Occupations In Action, available at https://www.youtube.com/playlist?list=PLRuFDIAZCtQ1MWnO9A4pEWHozvt_Ool_8
 - Video: Occupational Employment <https://www.bls.gov/k12/teachers/videos/occupations.htm>
 - Project Evaluation Sheet, one teacher copy for each collaborative group
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To prepare:

- **(Day One)** Download the most current national annual median wage data using the following steps.
 - a. Go to [bls.gov/oes](https://www.bls.gov/oes)
 - b. Find the 'OES Data' drop-down menu on the left-hand side and select 'National'
 - c. Near the top of the page that opens, click the 'downloadable XLS file' link
 - d. Open the file and scroll to the 'a_median' column and 'All Occupations' row for the latest statistic (\$39,810 as of May 2019)
- **(Day One)** Make copies of Handouts 1 and 2, one each per student.
- **(Day One)** Get Opportunity Occupations In Action videos cued, available at the Federal Reserve Bank of Kansas City's YouTube channel, https://www.youtube.com/playlist?list=PLRuFDIAZCtQ1MWnO9A4pEWHozvt_Ool_8.
- **(Day Two)** Make copies of Handout 3 and cut apart into 15 cards.
- **(Day Two)** Prepare cup or container to hold Handout 3 after being cut apart.
- **(Day Two)** Make copies of Handout 4, one set per collaborative group.
- **(Day Two)** Make copies of Handout 5, one per student.
- **(Day Two)** Make copies of Handout 6 and cut into 12 cards, one per collaborative group.
- **(Day Three)** Get U.S. Bureau of Labor Statistics video cued, at <https://www.bls.gov/k12/teachers/videos/occupations.htm>.
- **(Day Three)** Make copies of Project Evaluation Sheet for teacher use, one per collaborative group.

DAY ONE PROCEDURE:

1. Ask students to raise their hand if they believe someone who doesn't get a bachelor's degree after completing high school can earn above a livable wage. Confirm that those who raised their hand are correct.
2. Ask students if they can name jobs that earn more than a livable wage without a bachelor's degree. (*Answers may vary, but may include: carpenters, electricians, plumbers, construction workers, etc.*)
3. Tell students that **wages** are income earned for providing human resources or labor in the market. That market, also known as the **labor market**, is the exchange of labor between workers who want to sell their labor and businesses that want to purchase that labor.
4. Explain that wages are computed by multiplying an hourly pay rate by the number of hours worked. Those hours are then calculated into weekly and then annual amounts.

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5. Tell students that the annual median wage for the U.S. is currently \$39,810 per year, and is adjusted based on regional differences in the cost of living. The median wage could be higher for those living on the east coast and a bit lower for those in Midwestern states.
6. Explain that jobs accessible to individuals without a bachelor's degree, yet pay above the national annual median wage, are called **opportunity occupations**.

Teacher note: \$39,810 is as of May 2019 per the U.S. Bureau of Labor Statistics. For updates, go to their website at [bls.gov/oes](https://www.bls.gov/oes) to download the most recent data (instructions provided within lesson preparation).

7. Distribute Handout 1: Opportunity Occupation Research to every student.
8. Ask students to find a partner.
9. Instruct students to read pages 1-4 on their own and then work with their partner to answer the questions on page 5.
10. Give students approximately 20 minutes to complete the activity.
11. As a class, review answers to the activity using the answer key provided, Handout 1: Opportunity Occupation Research Answer Key. For questions 5-7, allow multiple students to respond to encourage diversity of thought.
12. Tell students that they'll now see opportunity occupations in action by watching a few short videos. Ask students to listen carefully because there will be questions afterward. Invite students to take notes if they'd like.
13. Play Opportunity Occupation in Action videos, available online through the Federal Reserve Bank of Kansas City's YouTube channel, https://www.youtube.com/playlist?list=PLRuFDIAZCtQ1MWnO9A4pEWHozvt_Ool_8.

Teacher note: Play the four videos in the order in which they appear. 1) Brian's Story, 2) Kendra's Story, 3) Paul's Story and 4) Mike's Story. You can also use the 'play all' option. Total time will be about 6 minutes.

14. After the videos, ask students the following:
 - How have opportunity occupations impacted the family that was featured in the videos?
(Answer: Father and daughter both worked as welders at the same company; father and daughter earned good wages and benefits working in an opportunity occupation; daughter has been able to go back to school for a business degree using her company's tuition reimbursement benefit; three generations worked at the same company and two generations worked there for their career and retired from there.)
 - What misperceptions did Bryan and Kendra have about opportunity occupations before working at the manufacturing plant?
(Answer: Bryan believed that he couldn't earn a decent living wage working in manufacturing and Kendra thought there wouldn't be opportunities to move upward or to move into other positions.)
 - In your opinion, what challenges might employers with opportunity occupations face when hiring and/or retaining employees?
(Answers may vary, but may include: some people may not like the physicality of the work or the non-traditional working hours or the work environment or the way others may view what they do for work.)
15. Inform students that they'll learn more about specific opportunity occupations during day two of the lesson.

DAY ONE CLOSURE:

16. Ask students the following:
 - What is the definition of an opportunity occupation?
(Answer: a job that is accessible to individuals without a bachelor's degree, yet pays above the national annual median wage)
 - What are some misperceptions about opportunity occupations that were mentioned in the videos?
(Answer: Bryan believed that he couldn't earn a decent living wage working in manufacturing and Kendra thought there wouldn't be opportunities to move upward or to move into other positions.)
 - What happens to wages when there are more workers in the labor market than there are businesses wanting to purchase labor?

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(Answer: businesses can likely pay lower wages because workers would rather be employed making less money than be out of work and making nothing at all)

17. Distribute Handout 2: Student Assessment, one per student.
18. Tell students to complete the top half of page one by writing a short paragraph (4-6 sentences) summarizing what they learned today about opportunity occupations. Tell students that it should include the vocabulary terms introduced today (opportunity occupations, labor market and wages).
19. Ask students to complete this activity as homework and to hold onto the handout because they'll use it again on day three of the lesson.

Teacher note: If class time remains, students can begin working on their day one summary.

DAY TWO PROCEDURE:

20. Ask students to take a minute to think about the opportunity occupations they learned about in the first part of the lesson and to identify which one they'd be most interested in pursuing or learning more about.
21. Allow several students to share their thoughts and the rationale for their choice.
22. Tell students that today's lesson will focus on learning more about specific opportunity occupations, starting with a short game of charades.
23. Take out a cup/container and place Handout 3 inside, cut apart in advance.
24. Explain how to play the game (if necessary):
 - I have several opportunity occupations in this cup/container.
 - For each round, I will ask one of you to volunteer and randomly pick one occupation to act out for the class. The volunteer cannot use their voice or any sounds.
 - The rest of you should guess out loud what occupation you think it is.
 - There is no limit to the number of times you can guess, but the round ends as soon as a correct guess is heard or one minute has passed, whichever comes first.
 - If time runs out before a correct guess is made, the volunteer will tell everyone what job they had and the annual median wage for that job, included on the card.
 - *(If applicable)* Those who volunteer and/or guess correctly first will get a _____.
 - We'll complete as many rounds as time allows.

Teacher note: There are 15 cards total, likely more than you'll need so you can pick the ones you'd prefer to include in the game. This activity should last about 10 minutes to allow time for the other day two procedures. During each round, you can either keep time yourself or ask a volunteer to serve as the timer. You may also choose to provide a small reward for volunteers and/or those who are the first to guess correctly. If desired, you may choose to close the activity by sharing all of the occupations that weren't acted out and asking students to guess which one(s) have the highest and/or lowest annual median wage before sharing the correct answer(s).

25. Ask students if they remember the opportunity occupation Kendra and her father had in the videos from day one? *(Answer: they are both welders)*
26. Ask students to guess what the annual median wage for welders is in the Midwest. *(Answers will vary; \$44,700 in Tulsa, OK)*
27. Tell students that they're going to now work together to research specific opportunity occupations that are provided to them.
28. Share with students that this project will include researching several aspects of their occupation, including wages, skills needed, training involved and much more.
29. Let students know that the knowledge and skills that people obtain through education, experience, and training is considered **human capital**.
30. Ask students if they can recall how Bryan from the video was improving his human capital? *(Answer: Bryan is serving as an apprentice at the manufacturing plant, working part-time hours during senior year of high school.)*

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31. Next, share that they will present a summary of what they've learned, both visually and verbally, to the rest of the class.
32. Explain that they will create an infographic (one-page poster) that highlights key information and data tied to their opportunity occupation.
33. Divide students into collaborative groups.
34. Distribute Handout 4: Opportunity Occupation Fact Sheets, one set (5 pages) per group.
35. Ask students to work together to identify which of the metropolitan cities in Handout 4 include registered nurses as one of their top ten opportunity occupations? (*Answer: all of them*)
36. Ask students to work with their group to determine the average annual median wage for registered nurses across all of the metropolitan areas. Remind students that to determine the average, they'll need to total the wages for all of the cities and then divide by the total number of cities. (*Answer: (\$60,000 OK + \$64,500 MO/KS + \$74,900 CO + \$61,700 NE-IA + \$72,700 in NM) = \$333,800; $\$333,800/5 = \$66,760$ is the average of the annual median wages across all five metropolitan areas*)
37. Distribute Handout 5: Opportunity Occupation Exploration, one per student.
38. Show Visual 1: Opportunity Occupation Project Guidelines and walk through the stated goal and steps.

Teacher note: The final infographic can be electronic or hard copy, based on your preference. Ensure students know your preference and any other parameters you decide.

39. Review the scoring rubric at the bottom of Visual 1 to let students know how they'll be evaluated.
40. Then, display Visual 2: Example and review how students should complete each section of Handout 5.
41. Show Visual 3: Infographic Samples and answer any questions students may have.

Teacher note: If need be, walk through the infographic samples by sharing what the sections include and the text/images/colors used to display them effectively.

42. Distribute Handout 6: Opportunity Occupation Cards (cut apart in advance), one card per collaborative group.

Teacher note: Handout 6: Opportunity Occupation Cards are provided with collaborative groups in mind. There are 12 cards, one for every 2-3 students in an average class size.

43. Ask groups to work together outside of class to complete the goal stated on Visual 1, based on the opportunity occupation they received.
44. Continue to display Visual 1 during the lesson closure.

Teacher note: If students don't have internet access, information from BLS about their occupation will need to be provided to them. For additional infographic samples or free copies ordered in advance, visit <https://www.frbatlanta.org/education/classroom-tools/infographics>.

DAY TWO CLOSURE:

45. Tell students that during day three of the lesson, each group will present their completed infographic to the class.
46. Explain that students will also complete Handout 2 that day, so they should bring Handouts 2 and 5 for day three's lesson.
47. Ask students the following:
 - What is human capital?
(*Answer: the knowledge and skills that people obtain through education, experience and training*)
 - In your opinion, why do some opportunity occupations exist in several geographic regions, while others are only in specific regions?
(*Answers will vary, but may include: some occupations are general in nature and needed everywhere; some jobs are related to businesses that cater to specific demographics and/or socio-economic levels; some careers relate to the environment in a particular region, like mining extraction in mountainous regions, etc.*)

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DAY THREE PROCEDURE:

48. Tell students that before presentations begin, they'll watch a video from the BLS about Occupational Employment.
49. Show Occupational Employment video, found at <https://www.bls.gov/k12/teachers/videos/occupations.htm>.
50. Ask students the following:
 - Which opportunity occupations were mentioned in the video?
(Answer will vary, but should include any of the following: receptionist or administrative assistant, sales representative, chef/head cook, technician in healthcare, registered nurse, truck driver, machinist, preschool teacher, forklift operator, office management, construction, installation maintenance and repair, protective service/police officer/firefighter, paralegal, etc.)
 - How can an individual's human capital be a benefit to them?
(Answer: knowledge and skills that people obtain through education, experience and training help to better prepare them for the job(s) they plan to pursue, can help them to improve their job performance and can give them the opportunity to advance in their career)
51. Tell students that they'll now present their group's infographics to the class and also finish Handout 2: Student Assessment in the process.
52. Ask students to take out a pencil/pen and Handout 2: Student Assessment from day one of the lesson.
53. Explain that during each presentation they should use the top section of page two to record two things they didn't know or that appealed to them about each opportunity occupation that is presented.
54. Tell students that they'll have time to complete the remaining sections of their handout after the presentations.
55. Invite collaborative groups, one at a time, to present their infographic to the class, reminding them that they have three minutes or less. Use the Project Evaluation Sheet to evaluate each group and individual student.

Teacher note: The Project Evaluation Sheet is structured to score individuals for completing Handouts 2 and 5, and a group score for the infographic and presentation. Using the format provided, each student should receive a score out of 100 possible points, factoring in their collective group score and their individual score. Only one Project Evaluation Sheet is needed per group/presentation. You might ask a volunteer to help keep time during the presentations so that you can focus on evaluation.

56. Ask each student to take the next 5 minutes complete any remaining sections of Handout 2, the bottom of pages one and two.
57. Tell students that the bottom of page one should be an overview of how their own human capital has improved during this lesson, anything that could be a benefit as they prepare to enter the labor market.

Teacher note: This will also give you time to complete more of the Project Evaluation Sheets.

DAY THREE CLOSURE:

58. Ask students if they recognized similarities between the opportunity occupations that were presented. (Answers will vary, but may include: many of them required physical strength and/or stamina; most of them had a high concentration in the southern and eastern states and California; all can be achieved with a high school diploma; many require certification or on-the-job training after high school; many required similar skills, such as detail oriented, communication, etc.)
59. Explain that honing basic skills, like being organized and communicating effectively, can not only improve their human capital, but help them regardless of which career they choose.
60. Encourage students to take advantage of opportunities to improve their human capital while in school, especially basic skills that can be a benefit in every job.
61. Ask students to turn in their completed Handouts 2 and 5.
62. If time allows, ask students to share which of the opportunity occupations they'd choose to pursue and why.
63. If feasible, encourage students to display their infographic in the classroom or common area(s) in the school for others to view.

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ASSESSMENT:

- Completed Handouts 2 and 5, as well as their infographic and presentation, evaluated using the Project Evaluation Sheet.
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EXTENSION:

- Have students pick an opportunity occupation within their local community and interview someone in that position about the human capital required to be successful.
- Have students identify which jobs in the community are opportunity occupations and use the criteria on Handout 5 as a template to learn more about those jobs.
- Have students research and create an infographic based on opportunity occupations within your city/state or one(s) they choose. If multiple occupations are included, students could also write a summary comparing and contrasting the occupations.
- Have students create an infographic that summarizes the opportunity occupations within a given state or area of the country (other than your own).

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VOLUNTARY NATIONAL CONTENT STANDARDS IN ECONOMICS

- Content Standard 13 - Income: Income for most people is determined by the market value of the productive resources they sell. What workers earn primarily depends on the market value of what they produce.
- Content Standard 15 - Economic Growth: Investment in factories, machinery, new technology, and in the health, education, and training of people stimulates economic growth and can raise future standards of living. Students will understand that productive resources are limited. Therefore, people cannot have all the goods and services they want; as a result, they must choose some things and give up others.

NATIONAL STANDARDS FOR FINANCIAL LITERACY

- Content Standard 1 – Earning Income: People can increase their income and job opportunities by choosing to acquire more education, work experience, and job skills.

COMMON CORE STANDARDS

- [CCSS.ELA-LITERACY.RI.9-10.1](#)
Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- [CCSS.ELA-LITERACY.RI.11-12.1](#)
Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
- [CCSS.ELA-LITERACY.RI.11-12.7](#)
Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
- [CCSS.ELA-LITERACY.W.9-10.2](#)
Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
- [CCSS.ELA-LITERACY.W.9-10.6](#)
Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
- [CCSS.ELA-LITERACY.W.9-10.7](#)
Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
- [CCSS.ELA-LITERACY.W.11-12.2](#)
Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
- [CCSS.ELA-LITERACY.W.11-12.7](#)
Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
- [CCSS.ELA-LITERACY.SL.9-10.1](#)
Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

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COMMON CORE STANDARDS CONTINUED

- CCSS.ELA-LITERACY.SL.9-10.2
Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.
- CCSS.ELA-LITERACY.SL.9-10.4
Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
- CCSS.ELA-LITERACY.SL.9-10.5
Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
- CCSS.ELA-LITERACY.SL.11-12.1
Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
- CCSS.ELA-LITERACY.SL.11-12.4
Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
- CCSS.ELA-LITERACY.SL.11-12.5
Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
- CCSS.ELA-LITERACY.L.9-10.1.B
Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, and absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.

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HANDOUT 1: OPPORTUNITY OCCUPATION RESEARCH (PAGE 1 OF 5)

Economic polarization in the U.S. economy, sometimes described as the hollowing out of the middle class, is likely to be at the core of many of the economic and social challenges our country will encounter over the next several decades.

Technological advancement, including automation, is thought to be an important driver of labor market polarization, but increased levels of global trade and lower rates of unionization are also thought to be factors. Moreover, while the current economic expansion might be historic in length, job growth has favored the college educated, and the presence of middle-wage jobs has diminished in urban areas as low-wage work has grown.

As a result of the confluence of these market forces, a plethora of research initiatives have been pursued to better understand and address these labor market dynamics. We define an opportunity occupation as one that is characterized by a high degree of opportunity employment — jobs accessible to workers without a bachelor's degree and typically paying above the national annual median wage (adjusted for differences in regional price levels). In this report, we advance our research on opportunity occupations and add to the broader literature by incorporating new data, making methodological improvements, and investigating research questions, including the following:

- Which occupations offer the most opportunity employment for sub-baccalaureate workers?
- What share of total employment can be classified as opportunity employment?

Key Findings

- Opportunity occupations accounted for 21.6 percent of total employment in the 121 metro areas analyzed.
- Some of the largest opportunity occupations, including a number in health care and the skilled trades, could experience above- average growth through 2026.
- For some of the largest opportunity occupations, the share of jobs available to sub-baccalaureate workers rose by more than 5 percent in recent years
- There is a dramatic difference in opportunity levels for sub-baccalaureate workers across metro areas. A majority of the metro areas with the highest shares of opportunity employment are located in the Midwest.

Excerpt above and following charts/tables are from Opportunity Occupations Revisited: Exploring Employment for Sub-Baccalaureate Workers Across Metro Areas and Over Time, developed by Keith Wardrip from the Federal Reserve Bank of Philadelphia, as well as Kyle Fee and Lisa Nelson from the Federal Reserve Bank of Cleveland. April 2019

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HANDOUT 1: OPPORTUNITY OCCUPATION RESEARCH (PAGE 2 OF 5)

The table below lists the 25 largest opportunity occupations present in the 121 metro areas analyzed. These 25 account for 47.7% of all opportunity occupations in these regions.

Table 1. Largest Opportunity Occupations (2017)

Occupation Title	Opportunity Employment	Share of Sub-Baccalaureate Job Ads	Distribution of Total Occupational Employment		
			Opportunity Employment	Higher Wages, Bachelor's Degree Required	Lower Wages
Registered Nurses	1,374,014	65.9%	65.9%	34.1%	0.0%
Heavy and Tractor-Trailer Truck Drivers	1,032,790	100.0%	93.1%	0.0%	6.9%
Bookkeeping, Accounting, and Auditing Clerks	581,455	58.8%	52.8%	37.4%	9.8%
Maintenance and Repair Workers	491,285	100.0%	54.0%	0.0%	46.0%
Carpenters	457,460	100.0%	91.7%	0.0%	8.3%
Electricians	453,790	100.0%	100.0%	0.0%	0.0%
Licensed Practical and Licensed Vocational Nurses	446,360	100.0%	100.0%	0.0%	0.0%
Supervisors of Office and Administrative Support Workers	433,025	38.9%	39.5%	60.5%	0.0%
General and Operations Managers	432,315	24.6%	26.0%	74.0%	0.0%
Sales Representatives, Wholesale and Manufacturing	426,495	39.5%	40.3%	59.5%	0.3%
Police and Sheriff's Patrol Officers	405,652	89.0%	87.9%	12.1%	0.0%
Sales Representatives, Services, All Other	370,776	44.9%	45.0%	53.8%	1.2%
Supervisors of Retail Sales Workers	368,040	64.9%	45.1%	21.3%	33.7%
Automotive Service Technicians and Mechanics	338,550	100.0%	76.9%	0.0%	23.1%
Plumbers, Pipefitters, and Steamfitters	313,670	100.0%	99.7%	0.0%	0.3%
Secretaries and Administrative Assistants	284,418	73.6%	17.7%	5.1%	77.2%
Construction Laborers	270,250	100.0%	40.2%	0.0%	59.8%
Computer User Support Specialists	262,827	53.1%	52.6%	47.1%	0.3%
Supervisors of Construction Trades and Extraction Workers	254,647	65.9%	65.3%	34.7%	0.0%
Executive Secretaries and Executive Administrative Assistants	227,786	46.0%	47.3%	52.7%	0.0%
Securities, Commodities, and Financial Services Sales Agents	225,101	70.8%	66.9%	32.1%	1.0%
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	221,640	100.0%	100.0%	0.0%	0.0%
Supervisors of Mechanics, Installers, and Repairers	204,586	65.4%	65.5%	34.5%	0.0%
Supervisors of Transportation and Material Moving Workers	204,286	71.8%	72.0%	28.0%	0.0%
Supervisors of Production and Operating Workers	202,699	53.5%	53.5%	46.5%	0.0%

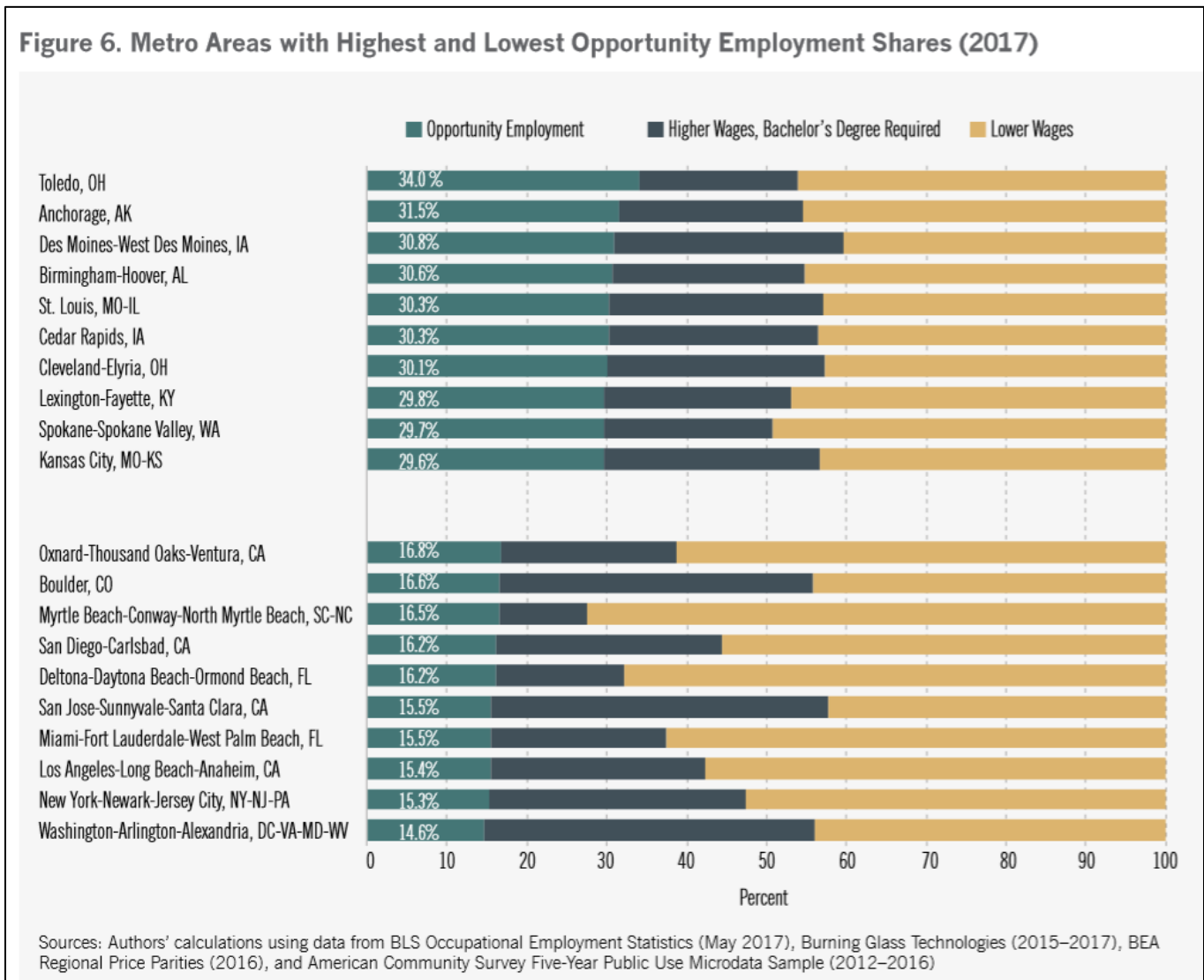
Sources: Authors' calculations using data from BLS Occupational Employment Statistics (May 2017), Burning Glass Technologies (2015–2017), BEA Regional Price Parities (2016), and American Community Survey Five-Year Public Use Microdata Sample (2012–2016)

SKILLED TRADE PAYS

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HANDOUT 1: OPPORTUNITY OCCUPATION RESEARCH (PAGE 3 OF 5)

The graph below includes the top 10 and bottom 10 metropolitan areas, based on share of opportunity employment compared to the distribution of higher and lower wage employment.

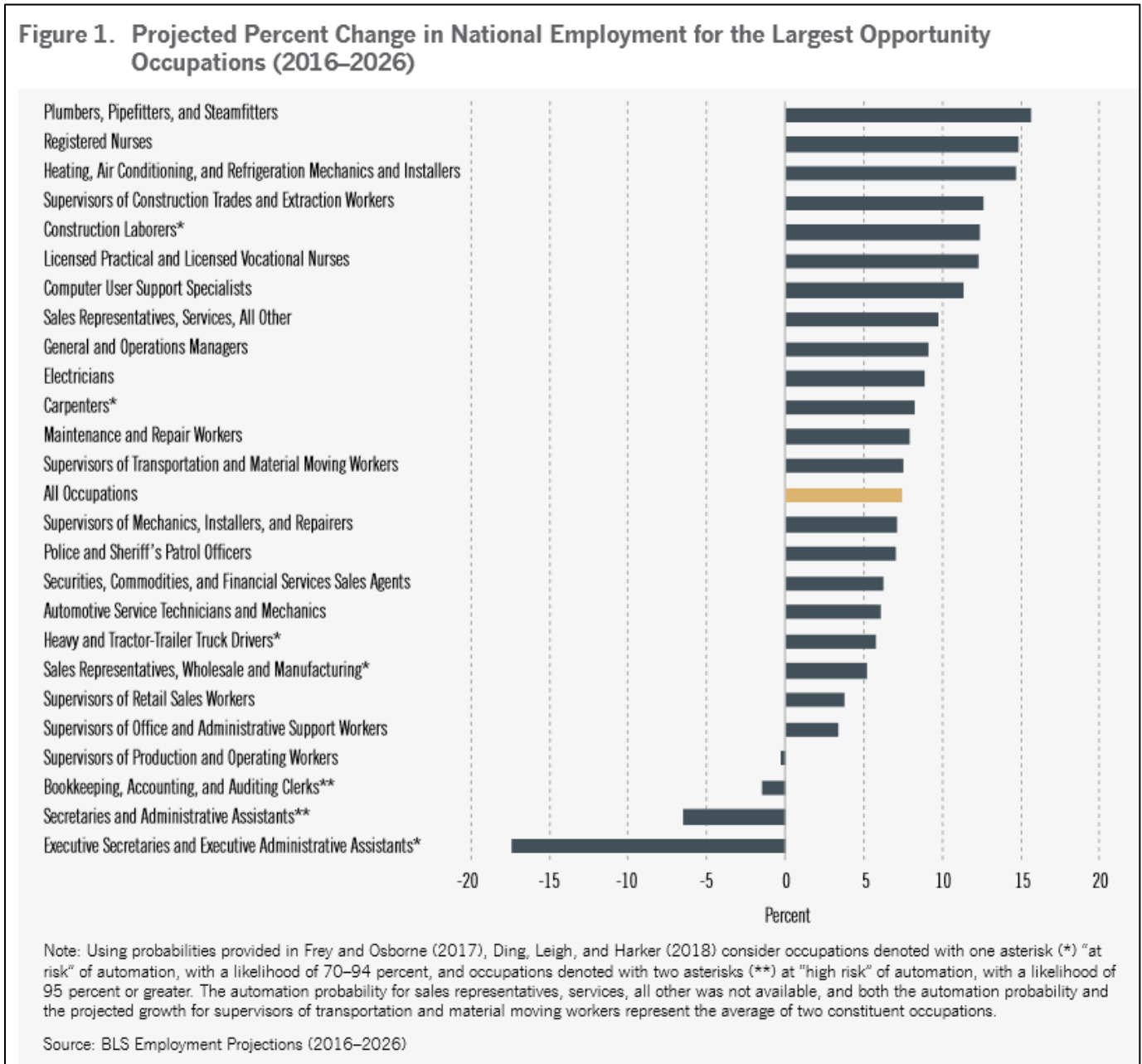


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HANDOUT 1: OPPORTUNITY OCCUPATION RESEARCH (PAGE 4 OF 5)

Figure 1 shows projected growth of the 25 largest opportunity occupations across the 121 metropolitan areas analyzed.



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HANDOUT 1: OPPORTUNITY OCCUPATION RESEARCH (PAGE 5 OF 5)

Review the data provided in the table and charts to answer the following questions. Use the back of the sheet if needed.

1. **According to Table 1, which opportunity occupation has the highest number of jobs (opportunity employment) available?**
2. **How many opportunity occupations in Table 1 are wholly accessible to individuals without a bachelor's degree (or sub-baccalaureate)?**

Name three.
3. **Some of the opportunity occupations listed in Table 1 have higher earning potential when a bachelor's degree is obtained. Which three jobs could yield the highest wage increase with a bachelor's degree?**
4. **In Figure 6, how do Toledo, OH and Washington D.C. differ as far as their share of opportunity occupations?**
5. **Based on Figure 6, what can be inferred about opportunity occupations in cities on the coasts as compared to those in the Midwest?**
6. **Based on Figure 1, what advice would you give to a younger student about their future career options if they don't think they'll have enough money to go to college? Why?**
7. **Based on the research overall, do you think that opportunity occupations are a valuable part of the labor market? Why or why not?**

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HANDOUT 1: OPPORTUNITY OCCUPATION RESEARCH ANSWER KEY

Review the data provided in the table and charts to answer the following questions. Use the back of the sheet if needed.

- 1. According to Table 1, which opportunity occupation has the highest number of jobs (opportunity employment) available?**
Registered Nurses
- 2. How many of the opportunity occupations in Table 1 are wholly accessible to individuals without a bachelor's degree (or sub-baccalaureate)? Name three.**
9; Should include three of the following: Heavy and Tractor-Trailer Truck Drivers, Maintenance and Repair Workers, Carpenters, Electricians, Licensed Practical and Vocational Nurses, Automotive Service Technicians and Mechanics, Plumbers, Pipefitters and Steamfitters, Construction Laborers, Heating, Air Conditioning, and Refrigeration Mechanics and Installers
- 3. Some of the opportunity occupations listed in Table 1 have higher earning potential when a bachelor's degree is obtained. Which three jobs could yield the highest wage increase with a bachelor's degree?**
General and Operations Managers, Supervisors of Office and Administrative Support Workers and Sales Representatives in Wholesale and Manufacturing
- 4. In Figure 6, how do Toledo, OH and Washington D.C. differ as far as their share of opportunity occupations?**
Toledo, OH has a higher share, by 20%
- 5. Based on Figure 6, what can be inferred about opportunity occupations in cities on the coasts as compared to those in the Midwest?**
Answers will vary, but should include that overall, cities on the coasts tend to have a lower share of opportunity occupations in comparison to those in the Midwest.
- 6. Based on Figure 1, what advice would you give to a younger student about their future career options if they don't think they'll have enough money to get a bachelor's degree? Why?**
Answers will vary, but should include careers such as plumber, pipefitter, steamfitter, registered nurse or heating, air conditioning and refrigeration mechanic or installer; these jobs are expected to have the highest percentage of growth in the next few years and don't require a bachelor's degree.
- 7. Based on the research overall, do you think that opportunity occupations are a valuable part of the labor market? Why or why not?**
Answers will vary.

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HANDOUT 2: STUDENT ASSESSMENT (PAGE 1 OF 2)

Student name _____

Day One – Summary *(Include terms – opportunity occupation and wages)*

Day Three – Human Capital Overview

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HANDOUT 2: STUDENT ASSESSMENT (PAGE 2 OF 2)

Day Three – Opportunity Occupation Highlights

Administrative Assistant _____

Assembler/Fabricator _____

Automotive Mechanic _____

Bookkeeper/Accountant _____

Electrician _____

Massage Therapist _____

Plumber _____

Police Officer _____

Registered Nurse _____

Sales Representative _____

Tractor-Trailer Truck Driver _____

Welder _____

Of all the opportunity occupations introduced within the lesson, which one would you choose to pursue and why?

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HANDOUT 3: OPPORTUNITY OCCUPATION CHARADES

Flight Attendant \$56,000/year	Mail Carrier \$58,760/year	Surgical Technologist \$47,300/year
Air Conditioning Installer \$47,610/year	Chef/ Head Cook \$48,460/year	Construction Worker \$34,810/year
Carpenter \$46,590/year	Preschool Teacher \$30,520/year	Roofer \$39,970/year
Real Estate Agent \$50,300/year	House Painter \$38,940/year	Lab Technician \$52,330/year
Firefighter \$49,620/year	Dental Hygienist \$74,820/year	Building Inspector \$59,700/year

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HANDOUT 4: OPPORTUNITY OCCUPATION FACT SHEETS (PAGE 1 OF 5)

Albuquerque, New Mexico



Sources: Authors' calculations using data from BLS Occupational Employment Statistics (May 2017), Burning Glass Technologies (2015–2017), BEA Regional Price Parities (2016), and American Community Survey Five-Year Public Use Microdata Sample (2012–2016). Values are rounded to the nearest 100. Occupations are ranked on unrounded opportunity employment values.

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HANDOUT 4: OPPORTUNITY OCCUPATION FACT SHEETS (PAGE 2 OF 5)

Boulder, Colorado



Sources: Authors' calculations using data from BLS Occupational Employment Statistics (May 2017), Burning Glass Technologies (2015–2017), BEA Regional Price Parities (2016), and American Community Survey Five-Year Public Use Microdata Sample (2012–2016). Values are rounded to the nearest 100. Occupations are ranked on unrounded opportunity employment values.

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HANDOUT 4: OPPORTUNITY OCCUPATION FACT SHEETS (PAGE 3 OF 5)

Kansas City, Missouri/Kansas



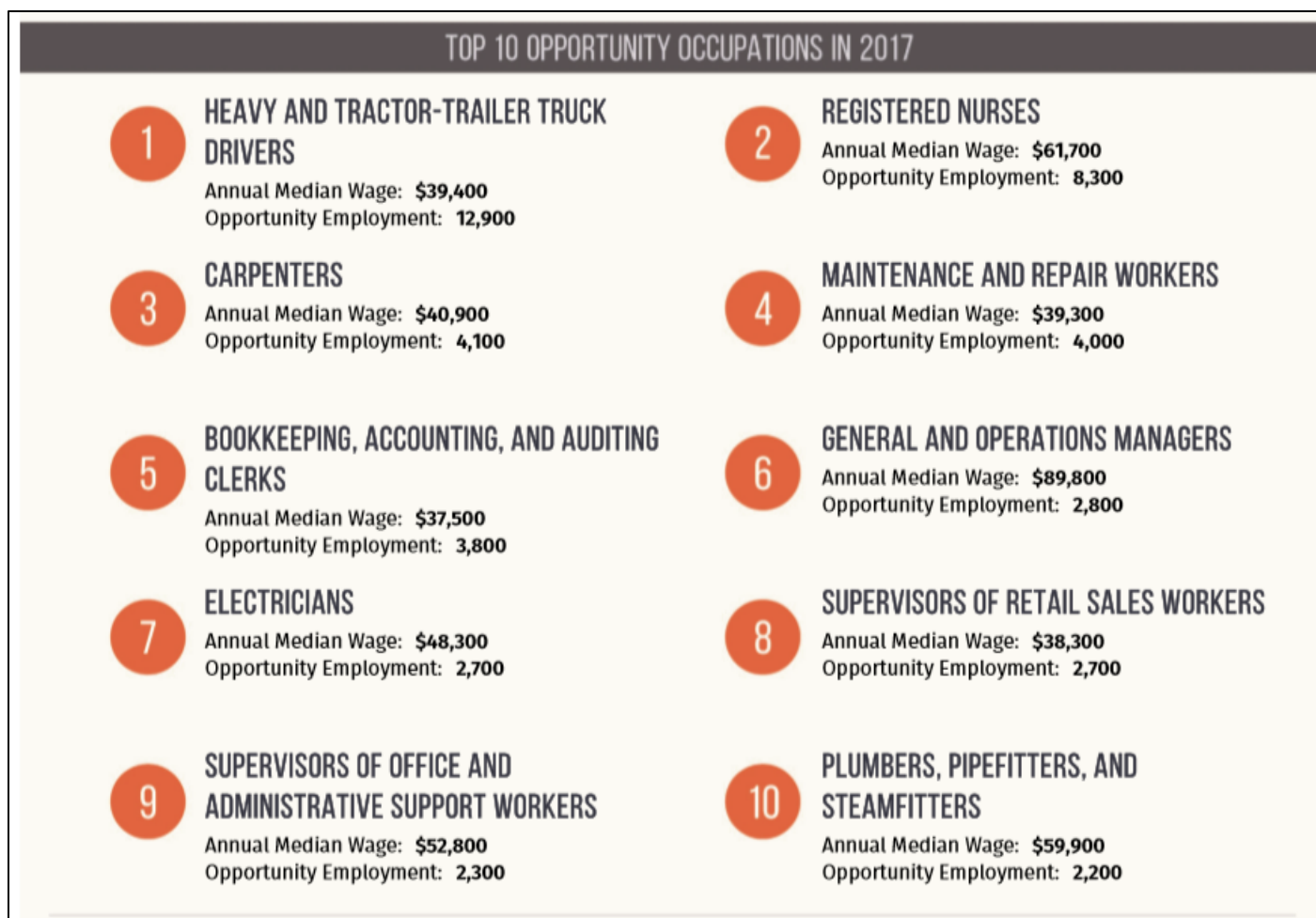
Sources: Authors' calculations using data from BLS Occupational Employment Statistics (May 2017), Burning Glass Technologies (2015–2017), BEA Regional Price Parities (2016), and American Community Survey Five-Year Public Use Microdata Sample (2012–2016). Values are rounded to the nearest 100. Occupations are ranked on unrounded opportunity employment values.

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HANDOUT 4: OPPORTUNITY OCCUPATION FACT SHEETS (PAGE 4 OF 5)

Omaha, Nebraska



Sources: Authors' calculations using data from BLS Occupational Employment Statistics (May 2017), Burning Glass Technologies (2015–2017), BEA Regional Price Parities (2016), and American Community Survey Five-Year Public Use Microdata Sample (2012–2016). Values are rounded to the nearest 100. Occupations are ranked on unrounded opportunity employment values.

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HANDOUT 4: OPPORTUNITY OCCUPATION FACT SHEETS (PAGE 5 OF 5)

Tulsa, Oklahoma



Sources: Authors' calculations using data from BLS Occupational Employment Statistics (May 2017), Burning Glass Technologies (2015–2017), BEA Regional Price Parities (2016), and American Community Survey Five-Year Public Use Microdata Sample (2012–2016). Values are rounded to the nearest 100. Occupations are ranked on unrounded opportunity employment values.

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HANDOUT 5: OPPORTUNITY OCCUPATION EXPLORATION

Section One

- My opportunity occupation is:
- Geographic location(s):
- Annual median wage(s):

Note: Use Handout 4: Opportunity Occupation Fact Sheets to complete this section. If your opportunity occupation can be found in more than one city, include the range from lowest to highest. (Example: \$45,000 in Tulsa, OK to \$62,500 in Boulder, CO)

Section Two *(Use back as needed)*

- Wage range:
- Job outlook/projected growth:
- States where this job is common:
- Largest employers:
- Primary responsibilities:
- Similar occupations:
- Human capital (skills, training, education) needed:

Note: Go to U.S. Bureau of Labor Statistics website, <https://www.bls.gov/ooh/>, to complete this section.

Section Three *(Use back as needed)*

- How does this opportunity occupation benefit the labor market overall?
- What makes this opportunity occupation more appealing than other opportunity occupations?

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HANDOUT 5: OPPORTUNITY OCCUPATION EXPLORATION ANSWER KEY (PAGE 1 OF 10)

Opportunity Occupation: **Administrative Assistant**

- Geographic location(s): **Kansas City, MO/KS**
 - Annual median wage(s): **\$35,400**
 - Wage range: **Lowest 10 percent earned less than \$24,690, and the highest 10 percent earned more than \$64,230**
 - Job outlook/projected growth: **Projected to decline 7 percent from 2018 to 2028 because many administrative assistants can support more than one manager in an organization and many managers now perform work that was previously done by their assistants**
 - States where this job is common: **CA, TX, LA, MO, IL, GA, NC, VA, OH, PA, NY, MA**
 - Largest employers: **Healthcare and social assistance; educational services; professional, scientific and technical services; government and religious, grant-making, civic organizations**
 - Primary responsibilities: **Clerical and administrative duties; proficient use of computer software to create spreadsheets, manage databases, prepare presentations, reports, and documents; negotiate with vendors; buy supplies; manage stockrooms or corporate libraries; use of videoconferencing, fax, and other office equipment**
 - Similar occupations: **Bookkeeping, accounting and auditing clerks; court reporters; financial clerks; general office clerks; information clerks; medical records and health information technicians; medical transcriptionists; paralegals and legal assistants; travel agents**
 - Human capital (skills, training, education) needed: **High school diploma; training in word processing, spreadsheet, and database software; industry-specific terminology and practices; knowledge of administrative procedures, including how to prepare documents; decision-making, interpersonal, organizational and writing skills**
 - How does this opportunity occupation benefit the labor market overall? **Answers will vary**
 - What makes this opportunity occupation more appealing than other opportunity occupations? **Answers will vary**
-

Opportunity Occupation: **Assembler/Fabricator**

- Geographic location(s): **Kansas City, MO/KS**
- Annual median wage(s): **\$38,300**
- Wage range: **Lowest 10 percent earned less than \$22,040, and the highest 10 percent earned more than \$54,780**
- Job outlook/projected growth: **Projected to decline 11 percent from 2018 to 2028 because many manufacturing sectors are expected to become more efficient and improved processes, tools, and, in some cases, automation will reduce job growth**
- States where this job is common: **CA, TX, FL, GA, SC, NC, TN, KY, IL, WI, IN, MI, OH, PA**
- Largest employers: **Transportation equipment manufacturing; temporary help services; machinery manufacturing; computer and electronic product manufacturing; fabricated metal product manufacturing**
- Primary responsibilities: **Assemble complex machines and the pieces that go into them; work with modern manufacturing systems such as robots, computers, programmable motion-control devices, and various sensing technologies; read detailed schematics that show how to assemble machines; use hand or power tools to make adjustments to fit components together; look for faulty components and mistakes in the assembly process and fix them; sometimes help with product development**

SKILLED TRADE PAYS

GIGI WOLF, FEDERAL RESERVE BANK of KANSAS CITY

HANDOUT 5: OPPORTUNITY OCCUPATION EXPLORATION ANSWER KEY (PAGE 2 OF 10)

Opportunity Occupation: **Assembler/Fabricator Continued**

- Similar occupations: Boilermakers; industrial machinery mechanics; machinery maintenance workers; millwrights; ironworkers; metal and plastic machine workers; sheet metal workers; welders, cutters, solderers and brazers
 - Human capital (skills, training, education) needed: High school diploma; several months of on-the-job training; certification and training through Fabricators & Manufacturers Association, International (FMA) and/or the Association Connecting Electronics Industries (IPC); color vision; dexterity; math skills; mechanical skills; physical stamina; physical strength; technical skills
 - How does this opportunity occupation benefit the labor market overall? Answers will vary
 - What makes this opportunity occupation more appealing than other opportunity occupations? Answers will vary
-

Opportunity Occupation: **Automotive Mechanic**

- Geographic location(s): Boulder, CO
- Annual median wage(s): \$44,500
- Wage range: Lowest 10 percent earned less than \$23,420, and the highest 10 percent earned more than \$66,950
- Job outlook/projected growth: Projected to show little or no change from 2018 to 2028 because number of vehicles in use is expected to continue to rise, but new technologies may limit future demand for automotive service technicians and mechanics because these vehicles will be more reliable and require less frequent maintenance and repair
- States where this job is common: CA, TX, MO, IL, MI, OH, PA, NY, NJ, VA, NC, TN, GA, FL
- Largest employers: Automobile dealers, automotive mechanical and electrical repair and maintenance; self-employed workers; automotive parts, accessories and tire stores
- Primary responsibilities: Work on traditional mechanical systems, such as engines, transmissions, and drive belts; familiarity with a growing number of electronic systems, braking, transmission, and steering systems; work on vehicles that use electricity or alternative fuels; use different tools, including computerized diagnostic tools and power tools and wrenches, lathes, welding torches, pliers, and sockets and ratchets and jacks and hoists; test parts and systems to ensure that they work properly; perform basic care and maintenance, including changing oil, checking fluid levels, and rotating tires; repair or replace worn parts
- Similar occupations: Aircraft and avionics equipment mechanics and technicians; automotive body and glass repairers; diesel service technicians and mechanics; heavy vehicle and mobile equipment service technicians; small engine mechanics
- Human capital (skills, training, education) needed: High school courses in automotive repair, electronics, computers, and mathematics provide a good background; complete a vocational or other postsecondary education program in automotive service technology; short-term certificate programs in a particular subject, such as brake maintenance or engine performance; certification from the National Institute for Automotive Service Excellence (ASE) is the standard credential for service technicians; must have at least 2 years experience (or relevant schooling and 1 year of experience) and pass an exam; customer service skills; detail oriented; dexterity; mechanical skills; organizational skills; physical strength; troubleshooting skills
- How does this opportunity occupation benefit the labor market overall? Answers will vary



SKILLED TRADE PAYS

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HANDOUT 5: OPPORTUNITY OCCUPATION EXPLORATION ANSWER KEY (PAGE 3 OF 10)

Opportunity Occupation: **Automotive Mechanic Continued**

- What makes this opportunity occupation more appealing than other opportunity occupations? *Answers will vary*
-

Opportunity Occupation: **Bookkeeper, Accountant and Auditing Clerk**

- Geographic location(s): Boulder, CO; Tulsa, OK; Kansas City, MO/KS; Omaha-Council Bluffs, NE-IA
 - Annual median wage(s): \$37,500 in Omaha-Council Bluffs, NE-IA to \$44,800 in Boulder, CO
 - Wage range: Lowest 10 percent earned less than \$25,260, and the highest 10 percent earned more than \$61,650
 - Job outlook/projected growth: Projected to decline 4 percent from 2018 to 2028 because technological change is expected to reduce demand for these workers
 - States where this job is common: CA, TX, WI, IL, MIC, OH, PA, NY, MA, NJ, VA, NC, FL
 - Largest employers: Professional, scientific and technical services; retail trade; wholesale trade; healthcare and social assistance; finance and insurance
 - Primary responsibilities: Use bookkeeping software, spreadsheets, and databases; enter (post) financial transactions into the appropriate computer software; receive and record cash, checks, and vouchers; put costs (debits) and income (credits) into the software, assigning each to an appropriate account; produce reports, such as balance sheets (costs compared with income), income statements, and totals by account; check for accuracy in figures, postings, and reports; reconcile or note and report any differences they find in the records; use basic mathematics to calculate data; responsibilities, such as payroll, billing, purchasing (buying), and keeping track of overdue bills; prepare bank deposits by compiling data from cashiers, verifying receipts, and sending cash, checks, or other forms of payment to the bank
 - Similar occupations: Accountants and auditors; bill and account collectors; budget analysts; cost estimators; financial clerks; loan officers; purchasing managers, buyers and purchasing agents; secretaries and administrative assistants; tax examiners and collectors, and revenue agents; tellers
 - Human capital (skills, training, education) needed: Basic math and computer skills, including knowledge of spreadsheets and bookkeeping software; on-the-job training; double-entry bookkeeping; certified Bookkeeper (CB) designation, awarded by the American Institute of Professional Bookkeepers; certification includes at least two years of full-time bookkeeping experience or equivalent part-time work, passing a four-part exam, and adhering to a code of ethics; computer skills; detail oriented; integrity
 - How does this opportunity occupation benefit the labor market overall? *Answers will vary*
 - What makes this opportunity occupation more appealing than other opportunity occupations? *Answers will vary*
-

Opportunity Occupation: **Electrician**

- Geographic location(s): Omaha-Council Bluffs, NE-IA and Albuquerque, NM
- Annual median wage(s): \$47,000 in Albuquerque, NM to \$48,300 in Omaha-Council Bluffs, NE-IA
- Wage range: Lowest 10 percent earned less than \$32,940, and the highest 10 percent earned more than \$94,620

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HANDOUT 5: OPPORTUNITY OCCUPATION EXPLORATION ANSWER KEY (PAGE 4 OF 10)

Opportunity Occupation: **Electrician Continued**

- Job outlook/projected growth: Projected to grow 10 percent from 2018 to 2028, faster than the average for all occupations, because of increases in construction spending and demand for alternative energy sources
- States where this job is common: WA, CA, TX, IL, MI, OH, PA, NY, MA, NJ, VA, NC, GA, FL
- Largest employers: Electrical contractors and other wiring installation contractors; manufacturing; self-employed workers; government; employment services
- Primary responsibilities: Read blueprints or technical diagrams; install and maintain wiring, control, and lighting systems; inspect electrical components, such as transformers and circuit breakers; identify electrical problems using a variety of testing devices; repair or replace wiring, equipment, or fixtures using hand tools and power tools; follow state and local building regulations based on the National Electrical Code; fix or replace parts, light fixtures, control systems, motors, and other types of electrical equipment; troubleshoot using ammeters, voltmeters, thermal scanners, and cable testers to find problems and ensure that components are working properly
- Similar occupations: Aircraft and avionics equipment mechanics and technicians; drafters; electrical and electronics engineering technicians; electrical and electronics engineers; electrical and electronics installers and repairers; elevator installers and repairers; heating, air conditioning, and refrigeration mechanics and installers; line installers and repairers; power plant operators, distributors, and dispatchers; solar photovoltaic installers
- Human capital (skills, training, education) needed: High school diploma; technical school programs related to circuitry, safety practices, and basic electrical information; 4- or 5-year apprenticeship program; technical instruction including electrical theory, blueprint reading, mathematics, electrical code requirements, and safety and first-aid practices; specialized training related to soldering, communications, fire alarm systems, and elevators; pass a test and be licensed based on requirements for that state; take continuing education courses in order to maintain their licenses; color vision; critical thinking skills; customer service skills; physical stamina; physical strength; troubleshooting skills
- How does this opportunity occupation benefit the labor market overall? Answers will vary
- What makes this opportunity occupation more appealing than other opportunity occupations? Answers will vary

Opportunity Occupation: **Massage Therapist**

- Geographic location(s): Boulder, CO
- Annual median wage(s): \$41,800
- Wage range: Lowest 10 percent earned less than \$21,340, and the highest 10 percent earned more than \$78,280
- Job outlook/projected growth: Projected to grow 22 percent from 2018 to 2028, because more states adopting licensing requirements and standards for massage therapists will likely lead to more respect and acceptance to treat pain and to improve overall wellness; demand will likely increase as more healthcare providers understand the benefits of massage and these services become part of treatment plans
- States where this job is common: WA, CA, CO, AZ, TX, FL, GA, NC, VA, IL, PA, NY, NJ
- Largest employers: Personal care services; self-employed workers; offices of other health practitioners; offices of chiropractors; accommodation

SKILLED TRADE PAYS

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HANDOUT 5: OPPORTUNITY OCCUPATION EXPLORATION ANSWER KEY (PAGE 5 OF 10)

Opportunity Occupation: **Massage Therapist Continued**

- Primary responsibilities: Discuss symptoms, medical history, and desired results with clients; evaluate clients to locate painful or tense areas of the body; manipulate muscles and other soft tissues of the body; provide clients with guidance on stretching, strengthening, overall relaxation, and how to improve their posture; document clients' conditions and progress; use touch to treat clients' injuries and to promote the clients' general wellness; use lotions and oils, and massage tables or chairs, when treating a client; suggest personalized treatment plans for their clients, including information about additional relaxation techniques to practice between sessions; specialize in many different types of massage or modalities
 - Similar occupations: Athletic trainers; exercise physiologists; physical therapist assistants and aides; physical therapists
 - Human capital (skills, training, and education) needed: High school diploma; massage therapy program with at least 500 hours of study including classroom and hands-on practice; knowledge of subjects such as anatomy, physiology, kinesiology, pathology, business management and ethics; a license or certification in massage therapy; graduation from an approved program and passing a state-specific exam or the Massage and Bodywork Licensing Examination (MBLEx) licensure exam; pass a background check, have liability insurance, and be certified in cardiopulmonary resuscitation (CPR); complete continuing education credits to renew their license periodically; communication skills; decision-making skills; empathy; integrity; physical stamina; physical strength; dexterity; time-management skills
 - How does this opportunity occupation benefit the labor market overall? *Answers will vary*
 - What makes this opportunity occupation more appealing than other opportunity occupations? *Answers will vary*
-

Opportunity Occupation: **Plumber (Pipefitter and Steamfitter)**

- Geographic location(s): Omaha-Council Bluffs, NE-IA and Albuquerque, NM
- Annual median wage(s): \$44,600 in Albuquerque, NM to \$59,900 in Omaha-Council Bluffs, NE-IA
- Wage range: Lowest 10 percent earned less than \$32,100, and the highest 10 percent earned more than \$93,700
- Job outlook/projected growth: Projected to grow 14 percent from 2018 to 2028 because of new construction and the need to maintain and repair plumbing systems in existing residences and other buildings; employment of sprinkler fitters is expected to increase as states continue to adopt changes to building codes that require the use of fire suppression systems
- States where this job is common: CA, CO, TX, FL, MN, MI, IL, IN, OH, PA, NY, MA, VA, NC
- Largest employers: Plumbing, heating and air-conditioning contractors; self-employed workers; heavy and civil engineering construction; government; manufacturing
- Primary responsibilities: Prepare cost estimates for clients; read blueprints and follow state and local building codes; inspect and test installed pipe systems and pipelines; troubleshoot malfunctioning systems; install pipes and fittings that carry water, gas, and other fluids and substances; connect pipes, and test pressure to ensure that a pipe system is airtight and watertight; install plumbing fixtures, such as bathtubs and toilets, and appliances, such as dishwashers and water heaters; clean drains, remove obstructions, and repair or replace broken pipes and fixtures; maintain septic systems

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HANDOUT 5: OPPORTUNITY OCCUPATION EXPLORATION ANSWER KEY (PAGE 6 OF 10)

Opportunity Occupation: **Plumber (Pipefitter and Steamfitter) Continued**

- Similar occupations: Boilermakers; construction and building inspectors; construction laborers and helpers; construction managers; electricians; general maintenance and repair workers; heating, air conditioning and refrigeration mechanics and installers; industrial machinery mechanics, machinery maintenance workers and millwrights; water transportation workers; welders, cutters, solderers and brazers
 - Human capital (skills, training, education) needed: High school diploma; courses in pipe system design, safety, and tool use from a vocational/technical school; complete a 4- or 5-year apprenticeship; pass the required licensing exam to become journey-level; communication skills; dexterity; mechanical skills; physical strength; troubleshooting skills to test new plumbing and piping systems
 - How does this opportunity occupation benefit the labor market overall? *Answers will vary*
 - What makes this opportunity occupation more appealing than other opportunity occupations? *Answers will vary*
-

Opportunity Occupation: **Police Officer and Detectives**

- Geographic location(s): Albuquerque, NM
- Annual median wage(s): \$57,600
- Wage range: Lowest 10 percent earned less than \$36,550, and the highest 10 percent earned more than \$106,090
- Job outlook/projected growth: Projected to grow 5 percent from 2018 to 2028 because of the continued desire to maintain and improve public safety
- States where this job is common: CA, TX, MI, IL, OH, PA, NY, MA, NJ, VA, NC, GA, FL
- Largest employers: Local government; state government; federal government; educational services
- Primary responsibilities: Patrol assigned areas; conduct traffic stops and issue citations; search for vehicle records and warrants using computers in the field; obtain warrants and arrest suspects; collect and secure evidence from crime scenes; prepare cases and testify in court; write reports and keep detailed records that will be needed if they testify in court; use law enforcement tools, such as radios, handcuffs, and guns; conduct regular patrols and respond to emergency and nonemergency calls; look for signs of criminal activity and conduct searches and arrest suspected criminals; may need skills to work in special units, such as horseback, motorcycle, canine corps, and special weapons and tactics (SWAT)
- Similar occupations: Correctional officers and bailiffs; emergency management directors; EMTs and paramedics; fire inspectors; firefighters; forensic science technicians; private detectives and investigators; probation officers and correctional treatment specialists; security guards and gaming surveillance officers
- Human capital (skills, training, education) needed: High school diploma; complete training academy program that covers law enforcement, state and local laws and constitutional law, civil rights, and police ethics and criminal justice; knowledge of a foreign language is an asset in many federal agencies and geographical regions; training and supervised experience in areas such as patrol, traffic control, firearm use, self-defense, first aid, and emergency response
- How does this opportunity occupation benefit the labor market overall? *Answers will vary*
- What makes this opportunity occupation more appealing than other opportunity occupations? *Answers will vary*

SKILLED TRADE PAYS

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HANDOUT 5: OPPORTUNITY OCCUPATION EXPLORATION ANSWER KEY (PAGE 7 OF 10)

Opportunity Occupation: **Registered Nurse**

- Geographic location(s): Boulder, CO; Tulsa, OK; Kansas City, MO/KS; Omaha-Council Bluffs, NE-IA; Albuquerque, NM
- Annual median wage(s): \$60,000 in Tulsa, OK to \$74,900 in Boulder, CO
- Wage range: Lowest 10 percent earned less than \$50,800, and the highest 10 percent earned more than \$106,530
- Job outlook/projected growth: Projected to grow 12 percent from 2018 to 2028 due to the following: an aging population that is likely to need more care; nurses needed to educate and care for patients with chronic conditions, such as arthritis, dementia, diabetes, and obesity; financial pressure on hospitals to discharge patients as soon as possible resulting in more people being admitted to long-term care facilities and outpatient care centers; additional demand for older people who prefer to be treated at home or in residential care facilities; demand in outpatient care centers, where patients stay overnight for chemotherapy, rehabilitation, and surgery; increased sophisticated procedures previously done in hospitals, now done in ambulatory care settings and physicians' offices
- States where this job is common: CA, MN, MI, IL MO, OH, PA, NY, MA, NJ, NC, GA, FL, TX
- Largest employers: Hospitals; ambulatory healthcare services; nursing and residential care facilities; government; educational services
- Primary responsibilities: Assess patients' conditions; record patients' medical histories and symptoms; administer patients' medicines and treatments; set up plans for patients' care or contribute information to existing plans; consult and collaborate with doctors and other healthcare professionals; operate and monitor medical equipment; help perform diagnostic tests and analyze the results; teach patients and their families how to manage illnesses or injuries; explain what to do at home after treatment
- Similar occupations: Dental hygienists; diagnostic medical sonographers and cardiovascular technologists and technicians; EMTs and paramedics; licensed practical and licensed vocational nurses; nurse anesthetists, nurse midwives and nurse practitioners; physician assistants; respiratory therapists; social workers
- Human capital (skills, training, education) needed: Diploma from an approved nursing program of 2-3 years with courses in anatomy, physiology, microbiology psychology, and other social and behavioral sciences; supervised clinical experience; additional education in physical and social sciences, communication, leadership, and critical thinking; a nursing license issued by the state in which they work; pass the National Council Licensure Examination (NCLEX-RN); pass a criminal background check per state requirements; become certified through professional associations for specific areas, such as ambulatory care, gerontology, or pediatrics; possibly certification in cardiopulmonary resuscitation (CPR), basic life support (BLS), or advanced cardiac life support (ACLS); critical-thinking skills; communication skills; compassion; detail oriented; emotional stability; organizational skills; physical stamina
- How does this opportunity occupation benefit the labor market overall? *Answers will vary*
- What makes this opportunity occupation more appealing than other opportunity occupations? *Answers will vary*

Opportunity Occupation: **Sales Representative, Wholesale and Manufacturing**

- Geographic location(s): Boulder, CO; Tulsa, OK; Kansas City, MO/KS
- Annual median wage(s): \$46,200 in Tulsa, OK to \$64,500 in Boulder, CO

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HANDOUT 5: OPPORTUNITY OCCUPATION EXPLORATION ANSWER KEY (PAGE 8 OF 10)

Opportunity Occupation: **Sales Representative, Wholesale and Manufacturing Continued**

- Wage range: Lowest 10 percent earned less than \$29,140, and the highest 10 percent earned more than \$122,770
- Job outlook/projected growth: Projected to grow 2 percent from 2018 to 2028, slower than the average, because of a rise in total volume of sales, a wider range of products and technologies offset by increase of online sales; growth is expected to be stronger for sales representatives working at independent sales agencies, because companies often shift their sales activities to independent agencies as a way to cut costs and boost revenue
- States where this job is common: WA, CA, TX, OK, FL, GA, TN, NC, IL, OH, PA, NY, MA
- Largest employers: Merchant wholesalers of durable goods; merchant wholesalers of nondurable goods; manufacturing; wholesale electronic markets and agents and brokers; retail trade; professional, scientific and technical services
- Primary responsibilities: Identify prospective customers by using business directories, following leads from existing clients; help customers select products to meet their needs, product specifications, and regulations; emphasize product features that will meet customers' needs, and exhibit the capabilities and limitations of their products; answer customers' questions about the prices, availability, and uses of the products they are selling; negotiate prices and terms of sales and service agreements; prepare sales contracts and submit orders for processing; collaborate with colleagues to exchange information, such as information on selling strategies and marketing information; follow up with customers to make sure that they are satisfied with their purchases and answer any questions or concerns they might have; may work with nonscientific products, such as food, office supplies, and clothing or technical and scientific products, ranging from agricultural and mechanical equipment to computer and pharmaceutical goods; maintaining and soliciting accounts; may make follow up visits to ensure that equipment is functioning properly and may even help train customers' employees to operate and maintain new equipment; may help arrange promotional programs, store displays, and advertising; analyze sales statistics, prepare reports, and handle administrative duties such as filing expense accounts, scheduling appointments, and making travel plans; staying up to date on new products and the changing needs of customers; attend conferences and conventions to meet other sales representatives and clients and to discuss new product developments; read about new and existing products and monitor the sales, prices, and products of their competitors
- Similar occupations: Advertising sales agents; customer service representatives; insurance sales agents; public relations specialists; purchasing managers, buyers and purchasing agents; real estate brokers and sales agents; retail sales workers; sales engineers; sales managers; securities, commodities and financial services sales agents
- Human capital (skills, training, education) needed: High school diploma; seminars in sales techniques or courses in marketing, economics, communication, or even a foreign language to improve their ability to make sales; training programs where they rotate among jobs in plants and offices in order to learn all phases of producing, installing, and distributing the product; formal technical instruction at the company to gain familiarity with the firm's products and clients; Certified Professional Manufacturers' Representative (CPMR) certification and the Certified Sales Professional (CSP) certification are both available; 10 hours of continuing education every year in order to maintain certification
- How does this opportunity occupation benefit the labor market overall? *Answers will vary*
- What makes this opportunity occupation more appealing than other opportunity occupations? *Answers will vary*

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HANDOUT 5: OPPORTUNITY OCCUPATION EXPLORATION ANSWER KEY (PAGE 9 OF 10)

Opportunity Occupation: **Tractor-Trailer and Heavy Truck Driver**

- Geographic location(s): Tulsa, OK; Kansas City, MO/KS; Omaha-Council Bluffs, NE-IA; Albuquerque, NM
- Annual median wage(s): \$39,000 in Albuquerque, NM to \$45,700 in Kansas City, MO/KS
- Wage range: Lowest 10 percent earned less than \$28,160, and the highest 10 percent earned more than \$65,260
- Job outlook/projected growth: Projected to grow 5 percent from 2018 to 2028 because the economy depends on truck drivers to transport freight and keep supply chains moving; and with increased demand for goods and consumer increases in spending, more truck drivers will be needed in the United States
- States where this job is common: CA, TX, FL, GA, TN, NC, IL IN, OH, PA, NY, NJ, MI, WI
- Largest employers: Truck transportation; wholesale trade; manufacturing; self-employed workers; construction
- Primary responsibilities: Drive long distances; report any incidents encountered on the road to a dispatcher; follow all applicable traffic laws; secure cargo for transport; inspect their trailers before and after the trip and record any defects they find; maintain a log of their working hours, following all safety and federal and state regulations; report serious mechanical problems to the appropriate people; keep their trucks and associated equipment clean and in good working order; take into account any road restrictions that prohibit large trucks; plan legally required rest periods into their trip; may need to transport hazardous materials, such as chemical waste and take special precautions and use special equipment in case of an accident
- Similar occupations: Bus drivers; delivery truck drivers and driver/sales workers; hand laborers and material movers; material recording clerks; railroad workers; taxi drivers, ride-hailing drivers and chauffeurs; water transportation workers
- Human capital (skills, training, education) needed: High school diploma; attend a professional truck driving school where they take training courses to learn how to maneuver large vehicles on highways or through crowded streets and receive a certificate of completion; learn federal laws and regulations governing interstate truck driving; have a commercial driver's license (CDL); maintain a clean driving record and pass a physical exam every two years; subject to random testing for drug or alcohol abuse; complete several weeks of on-the-job training; drive a truck accompanied by an experienced mentor-driver in the passenger seat; hand-eye coordination; hearing ability; physical health; visual ability
- How does this opportunity occupation benefit the labor market overall? Answers will vary
- What makes this opportunity occupation more appealing than other opportunity occupations? Answers will vary

Opportunity Occupation: **Welder (Cutter, Solderer and Brazier)**

- Geographic location(s): Tulsa, OK
- Annual median wage(s): \$44,700
- Wage range: Lowest 10 percent earned less than \$28,560, and the highest 10 percent earned more than \$63,740
- Job outlook/projected growth: Projected to grow 3 percent from 2018 to 2028, slower than the average, because of the nation's aging infrastructure, construction of new power generation facilities and, specifically, pipelines transporting natural gas and oil, and anticipated need in manufacturing industries to produce fabricated metal products and transportation equipment
- States where this job is common: CA, TX, OK, LA, MO, FL, GA, NC, IL, WI, MI, IN, OH, PA

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HANDOUT 5: OPPORTUNITY OCCUPATION EXPLORATION ANSWER KEY (PAGE 10 OF 10)

Opportunity Occupation: **Welder (Cutter, Solderer and Brazier) Continued**

- Largest employers: Manufacturing; specialty trade contractors; self-employed workers; repair and maintenance; merchant wholesalers of durable goods
- Primary responsibilities: Study blueprints, sketches, or specifications; calculate the dimensions of parts to be welded; inspect structures or materials to be welded; ignite torches or start power supplies; monitor the welding process to avoid overheating; maintain equipment and machinery; join steel beams in the construction of buildings, bridges, and other structures and join pipes in pipelines, power plants, and refineries; use electrical currents to create heat and bond metals together
- Similar occupations: Assemblers and fabricators; boilermakers; industrial machinery mechanics, machinery maintenance workers and millwrights; jewelers and precious stone and metal workers; machinists and tool and die makers; metal and plastic machine workers; plumbers, pipefitters and steamfitters; sheet metal workers
- Human capital (skills, training, education) needed: High school diploma combined with technical and on-the-job training; courses in blueprint reading, shop mathematics, mechanical drawing, physics, chemistry, and metallurgy leading to certification from the American Welding Society in welding or certification in specific skills, such as Certified Welding Inspector and Certified Robotic Arc Welding; an understanding of electricity and knowledge of computers; detail oriented; manual dexterity; physical stamina; physical strength; spatial-orientation skills; technical skills
- How does this opportunity occupation benefit the labor market overall? Answers will vary
- What makes this opportunity occupation more appealing than other opportunity occupations? Answers will vary

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VISUAL 1: OPPORTUNITY OCCUPATION PROJECT GUIDELINES

Goal: As a group, create and present an infographic to the class that summarizes the information compiled about your opportunity occupation.

Steps:

1. Based on the job you receive on your Opportunity Occupation Card, complete Handout 5: Opportunity Occupation Exploration.
2. Use Handout 4, the Fact Sheets, to complete section one.
3. Then go to the U.S. Bureau of Labor Statistics website to complete section two (link provided on your handout).
4. Complete section three based on your group's collective opinions.
5. Determine how best to visually display the information gathered (using text, images, charts, graphs, color, etc.).
6. Create a one-page infographic that summarizes information about your opportunity occupation.
7. Present the final infographic to the class in three minutes or less.
8. Turn in completed Handouts 2 and 5 (everyone) and final infographic (group).

SCORING RUBRIC	Fair (1-3)	Good (4-6)	Excellent (7-10)
Completion of Handout 5	Completed a portion of handout accurately or didn't turn it in	Completed handout with some accuracy and grammar/punctuation errors	Completed handout accurately with correct grammar and punctuation
Infographic content	Included a portion of requested content	Included most of requested content	Included all requested content
Infographic design	Layout included text, minimal images/charts and no color variation	Layout included images/charts and text with minimal color variation	Layout included images, text and several charts/graphs with effective use of various colors
Infographic clarity	Information was difficult to interpret	Information could be interpreted somewhat	Information could be easily interpreted
Presentation	Shared little information, involved one group member and/or not easy to understand	Shared some information, involved some group members and/or easy to understand	Shared all information, involved all group members and/or easy to understand

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VISUAL 2: EXAMPLE

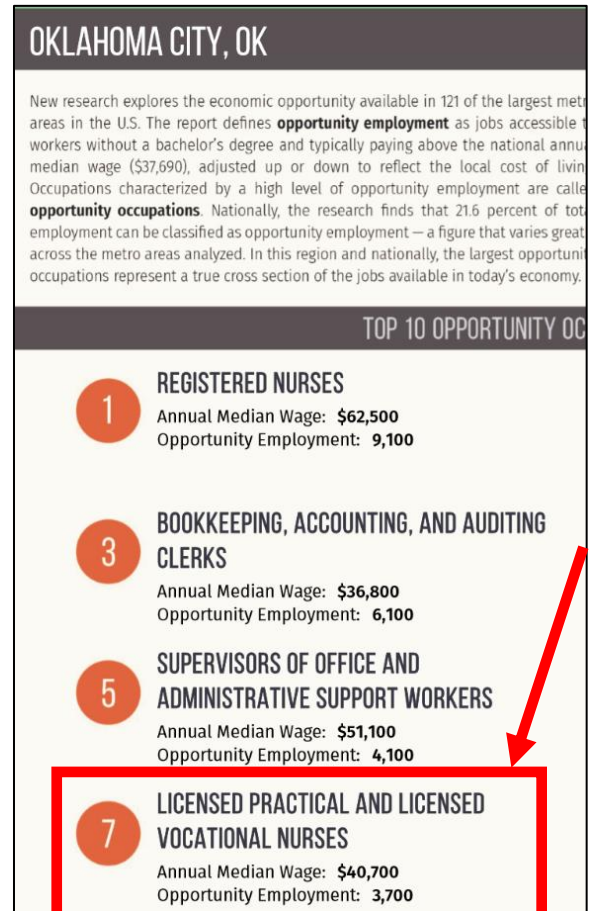
Section One - Use Handout 4: Opportunity Occupation Fact Sheets to complete this section.

- **My opportunity occupation is:** Vocational Nurse
- **Geographic location(s):** Oklahoma City, OK
- **Annual median wage(s):** \$40,700

Note: Be sure to include ALL cities where your job is located.

Section Two – Go to <https://www.bls.gov/ooh/> to complete this section.

- **Wage range:** Lowest 10 percent earned less than \$33,680, and the highest 10 percent earned more than \$62,160
- **Job outlook/projected growth:** Projected to grow 11 percent from 2018 to 2028 because of...(include reason)
- **States where this job is common:** TX, CA, NY, FL, OH, LA, GA, IL, TN, NC, VA, PA, MA
- **Largest employers:** Nursing and residential care facilities; hospitals; offices of physicians; home healthcare services; government
- **Primary responsibilities:** Monitor patients' health by checking their blood pressure; administer basic patient care and comfort; discuss the care they are providing and listen to patients' concerns; report patients' status and concerns to registered nurses and doctors; keep records on patients' health; reinforce teaching done by registered nurses; help to deliver, care for, and feed infants; collect samples for testing and do routine laboratory tests; feed patients who need help eating; give medication or start intravenous (IV) drips per state regulations; supervise and direct other LPNs or LVNs and unlicensed medical staff
- **Similar occupations:** Medical assistants; surgical technologists; nursing assistants and orderlies; physical therapist assistants and aides; occupational therapy assistants and aides; psychiatric technicians and aides; registered nurses
- **Human capital (skills, training, education) needed:** Certificate or diploma from an approved educational program that combines nursing, biology, and pharmacology; supervised clinical experience; must pass the National Council Licensure Examination (NCLEX-PN); compassion; detail oriented; interpersonal skills; patience; physical stamina; good speaking/communication skills



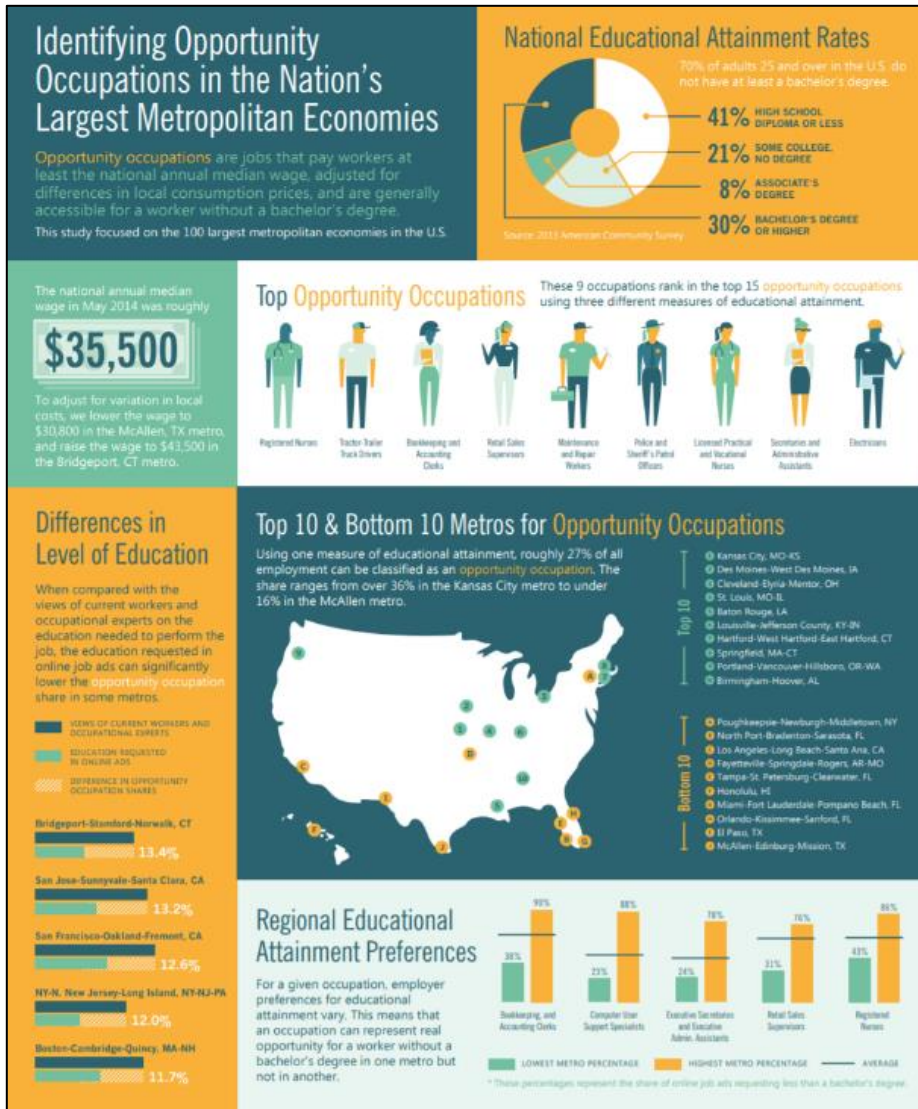
Section Three – Work with your group to complete this section based on your collective opinions.

Then, determine how best to summarize and visually display the information gathered (using text, images, charts, graphs, color, etc.). Prepare to present the infographic information to the class. Keep the scoring rubric in mind.

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VISUAL 3: INFOGRAPHIC SAMPLES



Additional examples of infographics can be found at:
<https://www.frbatlanta.org/education/classroom-tools/infographics.aspx>

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HANDOUT 6: OPPORTUNITY OCCUPATION CARDS

<p><i>OPPORTUNITY OCCUPATION CARD</i></p> <p>Administrative Assistant</p>	<p><i>OPPORTUNITY OCCUPATION CARD</i></p> <p>Plumber</p>
<p><i>OPPORTUNITY OCCUPATION CARD</i></p> <p>Assembler/ Fabricator</p>	<p><i>OPPORTUNITY OCCUPATION CARD</i></p> <p>Police Officer</p>
<p><i>OPPORTUNITY OCCUPATION CARD</i></p> <p>Automotive Mechanic</p>	<p><i>OPPORTUNITY OCCUPATION CARD</i></p> <p>Registered Nurse</p>
<p><i>OPPORTUNITY OCCUPATION CARD</i></p> <p>Bookkeeper/ Accountant</p>	<p><i>OPPORTUNITY OCCUPATION CARD</i></p> <p>Sales Representative (Wholesale/Manufacturing)</p>
<p><i>OPPORTUNITY OCCUPATION CARD</i></p> <p>Electrician</p>	<p><i>OPPORTUNITY OCCUPATION CARD</i></p> <p>Tractor-Trailer Truck Driver</p>
<p><i>OPPORTUNITY OCCUPATION CARD</i></p> <p>Massage Therapist</p>	<p><i>OPPORTUNITY OCCUPATION CARD</i></p> <p>Welder</p>

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PROJECT EVALUATION SHEET

Opportunity Occupation: _____

Group Score	Fair (1-3)	Good (4-6)	Excellent (7-10)	Notes
Infographic content				
Infographic design				
Infographic clarity				
Presentation				
Total (_____ out of 40 possible pts.) x 2 = _____ FINAL GROUP SCORE				

Student Name	Individual Score for Handouts			Individual Score x 2	Final Group Score (from above)	Total Individual Score
	Fair (1-3)	Good (4-6)	Excellent (7-10)			

SCORING RUBRIC	Fair (1-3)	Good (4-6)	Excellent (7-10)
Completion of Handouts	Completed a portion of handout accurately or didn't turn it in	Completed handout with some accuracy and grammar/punctuation errors	Completed handout accurately with correct grammar and punctuation
Infographic content	Included a portion of requested content	Included most of requested content	Included all requested content
Infographic design	Layout included text, minimal images/charts and no color variation	Layout included images/charts and text with minimal color variation	Layout included images, text and several charts/graphs with effective use of various colors
Infographic clarity	Information was difficult to interpret	Information could be interpreted somewhat	Information could be easily interpreted
Presentation	Shared little information, involved one group member and/or not easy to understand	Shared some information, involved some group members and/or easy to understand	Shared all information, involved all group members and/or easy to understand