Summary

Unit One addressed the big picture of labor market realities—which industries are growing, which are shrinking, and technology’s impact on the market. Students interpreted graphs and charts depicting recent employment trends in Construction and learned about a wide range of careers in the sector. They also learned about how technology has impacted the sector, what a labor union is, and the various types of career families and employer types available in Construction.

Unit Two addressed the inner workings of the job-seeker. What are her interests and passions? What kind of work environment will she enjoy? What careers should she consider based on what she knows about herself and what factors might influence someone making a career change? Students also learned to navigate career database websites, assess their own interests and conduct a group research project about careers in the Construction sector.

In Unit Three, students heard from Construction workers themselves, through firsthand accounts and interviews from workers in text and video. They developed informational interview questions and conducted further research on Construction careers of interest.

In Unit Four, students consider what it takes to prepare for a career in Construction. They learn about common career pathways in the industry and consider how career movement happens in Construction careers. What kinds of training and education opportunities are available for someone interested in this field?
1. **CALCULATING WITH BAR GRAPHS: EDUCATION PAYS**

Students read and discuss a graph about levels of educational attainment as they relate to annual earnings, and calculate differences in earnings between various levels of education.

2. **A CONSTRUCTION CAREER MOVEMENT SERIES**

Students learn about how career movement happens in Construction and consider their own career trajectories and values.

2.1 • Jason Miller’s Career Movement Story

Students read a story about education and career movement from a Construction worker who reflects on his time in high school when his interest in the field began. Students learn about the different steps he took and choices he made along the way to discovering his true passion and ideal career.

2.2 • Extension Activity: Figurative Language in Jason Miller’s Career Movement Story

Students learn about figurative language, in particular metaphor and simile. They find and discuss examples of figurative language in Jason’s Career Movement Story and practice writing their own to share with the class.

2.3 • Jason’s Career Map

Drawing on their experiences with map-reading, students consider the trajectory Jason took and portray it as a map. They focus on the steps he took to move from one job to another.

2.4 • Multiple Paths: How Personal Factors Impact Career Movement

Delving more deeply into career pathways, students discuss the personal life factors that cause a worker to choose one path over another, considering their own goals and limitations.

3. **JOB TRAINING SERIES IN CONSTRUCTION**

Students learn about job training programs—what they are, how to find a good one, what to expect as a participant, and research high-quality job training programs.

3.1 • Finding Your Path

Students read an informational text on the differences between certification training, Associate’s and Bachelor’s degree programs and apply this information to their own career exploration.

3.2 • Job-Seeker Terminology

Students learn vocabulary relevant to a job search in any sector, by matching job search terms to their definitions.
3.3 • Know Before You Enroll*
Students read a tip sheet and discuss advice about how to find a reputable job training program. They then write letters of advice to friends or family members who might want to enroll in a job training program.

3.4 • Apprenticeships in Construction
What is an apprenticeship? How do people become apprentices? Students read an informational text and practice summarizing while learning how apprenticeships work in Construction.

3.5 • Assessing and Selecting Job Training Programs in Construction
Students learn about local training programs by researching training websites and discussing their findings.

3.6 • A Taste of Training: Reading a Construction Employee Safety Manual
Students read an excerpt from an OSHA Construction safety manual, practice note-taking, and check their comprehension through a quiz with reading, writing, and math problems.

4. CUNY CAN GET YOU THERE SERIES: PROGRAMS IN CONSTRUCTION*
Students learn about CUNY certificate and degree programs in Construction and practice using resources to research them, including the CUNY college websites.

4.1 • CUNY Basics: An Overview of the CUNY System
Students read an overview of CUNY colleges and programs. They practice using a table that lists academic programs offered at CUNY, organized by campus.

4.2 • Researching CUNY Degree and Certificate Programs in Construction*
Students learn how to locate information about degree and certificate programs on a college website by navigating to a CUNY campus website for their Construction programs.

4.3 • Understanding Degree Program Requirements*
Students read about a sample degree program at a CUNY college and discuss the relevance of general education requirements to the major.

4.4 • CUNY Certificates: Construction Management and Solar PV Installation Professional*
Students learn about Construction certificates offered at a CUNY campus while practicing website navigation, reading program descriptions, and developing questions based on what they read.

4.5 • How Do I Enroll in CUNY?*
Students learn the steps required to apply to CUNY certificate and degree programs.
In groups, students research one of five mid-to-high level careers in Construction and Design. They practice navigating and paraphrasing information from an online database, then present their findings to the class, critiquing their own and one another’s presentations.
Calculating With Bar Graphs: Education Pays

Students read a graph about lifetime earnings and educational attainment, then perform calculations based on the numbers.

PREP

- Read the graph, *Average Lifetime Earnings and Educational Attainment*
- Write the following Agree/Disagree statements on the board:

  **People with more education usually earn more money than those with less education.**

  **People with high school/HSE diplomas usually earn the same amount of money as those who don’t have a HS diploma or HSE.**

  **People who have started college, but not yet earned a degree, earn the same amount as HSE diploma holders who have not had any college.**

  **People who go to college will be rewarded financially.**

MATERIALS

- *Average Lifetime Earnings and Educational Attainment* graph
- *Calculating Earnings* worksheet

EXPLAIN

1. Pursuing higher levels of education and training is a big step. It requires time, money, excellent organization and time management (especially if you have a job and/or family responsibilities), and a lot of hard work. Some people believe it will really help them get ahead financially and professionally. Other people wonder if it is worth the sacrifice. What do you think? Discuss with a partner whether you agree or disagree with the statements on the board.

2. Researchers had some of these same questions, and studied if people who had higher levels of education earned more money than those with lower levels of education. They found out how much money people earned during their lifetimes, and whether or not their education played a role. Read the graph to find out what they learned.

3. Distribute the *Average Lifetime Earnings and Educational Attainment* graph.
Average Lifetime Earnings and Educational Attainment

MEDIAN WAGE BY EDUCATIONAL ATTAINMENT IN NEW YORK CITY, 2014

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Median Wage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than HS/HSE</td>
<td>$28,000</td>
</tr>
<tr>
<td>HS/HSE</td>
<td>$46,000</td>
</tr>
<tr>
<td>Some college, no degree</td>
<td>$43,000</td>
</tr>
<tr>
<td>Associate</td>
<td>$45,000</td>
</tr>
<tr>
<td>Bachelor’s</td>
<td>$65,000</td>
</tr>
<tr>
<td>Master’s</td>
<td>$76,000</td>
</tr>
<tr>
<td>Professional*</td>
<td>$110,000</td>
</tr>
<tr>
<td>Doctoral</td>
<td>$88,000</td>
</tr>
</tbody>
</table>

* Includes postsecondary certification and technical training.
** Includes medical doctors, lawyers, dentists, and others.


Prepared by The NYC Labor Market Information Service at The Graduate Center, CUNY.

Credit: NYC Labor Market Information Service
DISCUSSION QUESTIONS

What does the title mean?

The median salary earned by workers in 2014 according to their highest level of education completed. Median means that half the salaries were higher and half were lower.

What does each bar in the graph represent? Does each dollar figure represent the amount of money everyone with that educational level earned?

No, it is the average median salary earned at that education level.

What does median mean?

Median is one way to get a general idea about data. For example, in terms of this graph, does everyone with at least and only a HS or HSE diploma make $36,000 a year? (No, there are lots of different salaries.) The same is true for all of the other educational levels. We use different ways to determine a general picture of a set of data. Mean (which you may have heard called “average”) is one of them. The way we figure out the median is to take all the salaries of people with only a HS or HSE diploma and imagine them all lined up in order of their salary, from lowest to highest. The salary of the person in the middle is the median salary. That gives us a general idea about what to expect in a salary for a person with a HS or HSE diploma.

What trend or pattern do you notice?

The higher the education, the greater the earnings. Some show large jumps. Other increases are smaller.

What are 3 examples of professional degrees?

MD—Medical Doctor, DDS—Doctor of Dental Surgery, M. Arch—Master in Architecture

Distribute the Calculating Earnings worksheet. Ask students to work on the problems, then discuss them as a class.
Calculating Earnings

1. How much more money does someone with a HS/HSE diploma earn than someone who never earns a HS/HSE diploma? Show your work below.

2. Write one sentence explaining what you did to solve this problem.

3. How much more money does someone with an Associate’s degree earn than someone with only a HS/HSE diploma? Show your work below.
# A Construction Career Movement Series

Students learn about how career movement happens in the Construction sector using a personal narrative and considering their own trajectories and values.

## ACTIVITIES IN THIS SERIES

- **2.1 • Jason Miller's Career Movement Story**
- **2.2 • Extension Activity: Figurative Language in Jason Miller's Career Movement Story**
- **2.3 • Jason's Career Map**
- **2.4 • Multiple Paths: How Personal Factors Impact Career Movement**
Jason Miller’s Career Movement Story

Students read and discuss the career movements of an experienced Construction professional as he describes the path he took in Construction. They track his education and career movements and consider the steps he took to move between each stage of his career.

PREP
- Read How I Found my True Calling in Construction

MATERIALS
- How I Found my True Calling in Construction reading
- Written Response: Jason Miller’s Story handout

EXPLAIN
1. Have you ever thought about how experiences in your past can influence you years later, in ways you hadn’t imagined? Can you think of an example of that in your life?

2. Introduce Jason Miller’s Story, explaining that Jason Miller had a positive experience in high school that ended up influencing his entire career. Jason has held many jobs: waiter, convenience store clerk, builder, and stone mason. Today Jason works as a roofer and is studying to be a Construction Manager.

3. Distribute How I Found my True Calling in Construction and ask students to read it. While they are reading, they should annotate it, underlining parts they find interesting, surprising or confusing.

4. Once they finish reading, they should write two things they notice in Jason Miller’s story, and two questions they have.

5. Distribute Written Response: Jason Miller’s Story, and ask students to complete it.

6. When students are finished, ask them to discuss their answers in pairs.

NOTE
For guidance on teaching annotation, see “How to Teach Annotation” in the User’s Guide, found at www.tinyurl.com/cunycareerkits.
How I Found my True Calling in Construction

Inspired by an interview with Thorn Winter

My name is Jason Miller, and my introduction to Construction was in a high school wood and metal shop in upstate New York. My shop teacher tasked me with developing a plan to produce toy wooden airplanes that would be donated to local families. This experience, and the shop teacher who guided me through it, chiseled an unbreakable set of features into my character. Responding to challenges with curiosity and excitement has been the key to my success.

My first job was clearing land with a chainsaw, digging in the earth, and assisting carpenters, electricians, and plumbers for my dad’s construction company. After high school, I decided to start college right away. While pursuing my first degree, I worked as a waiter and a convenience store clerk—jobs that I thought would be fun and a change from Construction. I was interacting with people and learning how to communicate with customers in a professional setting—something that even to this day doesn’t come easy. But I was always focused and never just showed up.

I returned to Construction after college, realizing that I loved being outside, building with my hands, and seeing the direct result of my labor at the end of the day. I felt proud when a family came home and marveled at their new porch, new roof, or renovated bathroom. During the next few years I framed houses, laid tile and roofing, and detailed moldings, banisters, and other trim. I worked as a plumbing and HVAC tech for a bit, but that wasn’t for me.

In the Spring of 2002 I started working with stone. I built stone structures and applied stone and other natural materials to interior and exterior designs. I worked for a great company with a friendly and successful leader. The homeowner market was booming, and “curb appeal” was the buzzword of the time.

The company took on some high-profile clients and my creativity was given a wider playground. I was the young experimenter again, shocking some clients and my boss, with leather and copper tile installations, creek-stone showers, and my favorite—stone sculpture. Business was good, the pay and the benefits were great, and I was—pardon the pun—a rock star, with work featured in Better Homes & Gardens and other homeowner media.

Then, in 2012, the housing market crashed. I was the highest paid employee and providing...
creative services at a time when demand for stonework suddenly went down. The company pulled back and I was cut. I’m still friendly with my former employer. It wasn’t his fault. Business is business and when someone opens up their table for you, you respect it, you appreciate it, and you don’t complain when the food runs out.

I took the opportunity to gain some more college credits, but with plans to get married and eventually have kids, I knew I needed to get back to earning. I wanted to build a long-term career in Construction, but I wasn’t sure when the economy would recover or how to open up employment opportunities in the future.

A friend working at Viking Industries—a Manufacturing company in New Paltz, New York—suggested I go in and apply. I did and I landed a forklift driving job at a considerably lower income level than I was accustomed to. But I chose to commit, hit the ground running, learned the environment, and worked my way up. With my mind focused on the goal, I quickly learned to operate saws, presses, gluers, stitchers, and assemblers, and how to fix what went wrong on various machines. Six months after taking the forklift position, I was promoted to Production Supervisor for the second shift. Viking introduced me to the Council of Industry and did a great job helping me to develop the skills needed to lead a team in this fast-paced and at times stressful environment. I was a fish out of water at first, accustomed to working on my own or with a small team where I called all the shots and had a bit more leeway with my subordinates. I improved my interpersonal skills while hiring to build my team and giving feedback to improve it. I was once again experimenting with processes to be more efficient, to improve safety, and to raise our standards of quality. I learned more deeply about the mechanical and electrical maintenance of our machines, knowing all the while that this knowledge would serve me well when I was able to move back into the world of Construction. Electrical and mechanical skills transfer to just about any industry you can think of, but especially Construction. I was also gaining valuable leadership skills, which made me start to think about potentially going into Construction Management someday.

At Viking, I worked closely with all of my operators to learn their machine with them and coach them toward higher efficiency and quality. Manufacturing is very different from anything I’ve done in my past.
I was very fortunate to have had a mentor to guide me, and an experienced colleague who I was smart enough to listen to. But it all came back to that shop class: No matter what struggle I came up against, I could stop for a moment, remind myself of the goal, and push aside the fear of failing. I began to gain more confidence in my abilities and my decisions. I learned about inventory, sales, and design, and am always looking to expand my knowledge base as a whole to make myself more valuable. No matter what I am doing, where I am working, or what chaos I am facing, I make my most difficult decisions with one tool—my work ethic. Work ethic isn’t just a buzzword, it’s a way of life. When you have it, you are thinking of how to serve, how to give the best, how to be what the moment requires, and how to follow through on promises. You don’t take setbacks personally and you lead the way through challenges. Nobody is perfect. Eventually the economy recovered and the Construction business picked up again. I was grateful for my time working in Manufacturing, as it allowed me to continue to provide for myself and my family while developing new skills, but I knew my heart was really in Construction. With the new leadership skills I had under my belt and my wide range of Construction experience, I decided to pursue a career in Construction Management. I felt drawn to this career because as a Construction Manager, I would get to oversee the planning, design, and construction of a project, from its beginning to its end. Construction Management would not only allow me to use my passion for design and my Construction skills, it will also ensure my family a very comfortable future, as the average salary for the field is close to $90,000 a year.

At the moment, I am working for a local roofing company and taking online classes to get my Bachelor’s degree in Construction Management. Someday I hope to also get my Master’s degree. Once again, I am motivated to learn new skills and adapt to new modes of thinking and feeling. I self-analyze, listen appreciatively to other people’s opinions about me, and make intentional choices to adapt to what my environment and the people in it need of me in the moment—whether it’s as an analyst, a laborer, a technician, a manager, a husband, a father, or a friend. This is what I love about Construction and the iron-willed people working in it. I am challenged every day to become the boy in the shop class, facing problems and fear while thinking and acting beyond failure.
Written Response: Jason Miller’s Story

Respond to the following questions in complete sentences, providing as much information as you can.

1. In his opinion, what did Jason’s early jobs have in common?

2. Why was Jason dissatisfied with his plumbing and HVAC jobs?

3. Why did Jason lose his job as a stone mason?

4. Why do you think Jason got a promotion after six months as a forklift driver?
5 Where in the reading does Jason talk about his work ethic? What does this term mean?

6 Describe the impact that Jason’s high school shop class had on his career.

7 Give one example of how the economy had a positive impact on Jason’s career and one example of how the economy had a negative impact.

8 Would you like to have any of the jobs Jason Miller has had? If so, explain which one and what interests you about this job. If not, explain why not.
EXTENSION ACTIVITY:

Figurative Language in Jason Miller’s Career Movement Story

Students learn about figurative language, in particular metaphor and simile. They find and discuss examples of figurative language in Jason Miller’s Career Movement Story and practice writing their own to share with the class.

*NOTE

This is an extension of the previous activity and can be done either before or after students discuss Jason Miller’s Story.

PREP

Read How I Found my True Calling in Construction handout and locate the following uses of figurative language. Be prepared to discuss their meanings.

- “This experience, and the shop teacher who guided me through it, chiseled an unbreakable set of features into my character.”
- “The homeowner market was booming.”
- “The company took on some high profile clients and my creativity was given a wider playground.”
- “Business was good, the pay and the benefits were great, and I was—pardon the pun—a rock star, with work featured in Better Homes & Gardens and other homeowner media.”
- “Business is business and when someone opens up their table for you, you respect it, you appreciate it, and you don’t complain when the food runs out.”
- “I was a fish out of water at first”
- “I am challenged every day to become the boy in the shop class.”

MATERIALS

- *Simile and Metaphor Definitions* handout
- *Simile and Metaphor Examples* handout
- *How I Found my True Calling in Construction* reading (provided in the previous lesson)
- *Metaphors in Jason Miller’s Story* (prompt)
EXPLAIN

1. Draw a two-column chart (T-chart) on the board and write “metaphor” on one side and “simile” on the other. Ask students whether they have heard these words before and if they know what they mean.

2. Ask students if they can give any examples of either a metaphor or a simile and write their responses in the T-chart on the board.

3. Distribute the *Simile and Metaphor Definitions* handout and ask for two volunteers to read it aloud.

4. Once students have read the definitions and seen the examples, ask them again to try to provide additional examples they might have heard before.

5. Distribute the *Simile and Metaphor Examples* handout. Ask students to read it silently and discuss a few of the examples. Poll students about which ones they have heard before. Tell students that writers and speakers use metaphors to help readers/listeners visualize their words.

6. Write the following example on the board or verbally ask students:

   **What is the difference between these two sentences?**
   
   (A) She had a heart of gold.  
   (B) She was a very kind person.

   Students may say something like: *Statement A makes a stronger statement by creating an image that the reader or listener can see in his or her imagination.*

7. Once students are clear on the concept, ask them to re-read *How I Found my True Calling in Construction* and put a star next to as many examples of figurative language as they can find. In the margin they should rewrite the figurative language into literal or simple, direct speech. Remind students to use context clues to help discern the meanings. Discerning meaning through context clues is a skill students will be tested on in the TASC exam.

8. Once students are done, bring the class back together and ask for volunteers to share the metaphors they identified and to explain what they mean.

9. Distribute *Metaphors in Jason Miller’s Story* and ask students to write on ONE of the prompts.

10. Ask for a few volunteers to share their response aloud with the class.
Simile and Metaphor Definitions

1 Simile

A simile makes a comparison between two items using the words *like* or *as*. The comparison makes a description more vivid or striking or easier to picture. A simile says to the listener that two things are similar. The key to recognizing a simile is identifying the word *as* or *like* in the comparison.

- The man was *like* a prowling lion.
- The man was *as* hungry as a bear.

If you know what a hungry bear might be like, you can imagine what the man feels or how he is acting. This comparison paints a picture in the listener’s mind.

2 Metaphor

Metaphors also make a comparison between two items, but they do not use *as* or *like* in the comparison. In a metaphor, one item is said to be the other item, as if the two items are equal, but this equality is not to be taken literally. Sometimes the comparison in a metaphor is clearly articulated. Other times, the comparison is implied.

- The man was a hungry bear, a prowling lion looking for prey.
- She jumped into a circus of activity once school started.

Excerpted and adapted from “Figure Friendly, How to Teach Your ESL Students about Figurative Language”; http://busyteacher.oral16977-how-to-teach-fig urative-language-esl-students.html
## Simile and Metaphor Examples

This is a list of well-known metaphors and similes. There are many more metaphors and similes, of course, some common and others less common because anyone can create them at any time—you too!

<table>
<thead>
<tr>
<th>Simile</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>like two peas in a pod</td>
<td>identical or nearly so</td>
</tr>
<tr>
<td>as blind as a bat</td>
<td>completely blind</td>
</tr>
<tr>
<td>as big as a bus</td>
<td>very big</td>
</tr>
<tr>
<td>as big as an elephant</td>
<td>very big</td>
</tr>
<tr>
<td>as brave as a lion</td>
<td>very brave</td>
</tr>
<tr>
<td>as black as coal</td>
<td>completely black</td>
</tr>
<tr>
<td>as busy as a beaver</td>
<td>very busy</td>
</tr>
<tr>
<td>as busy as a bee</td>
<td>very busy</td>
</tr>
<tr>
<td>as clear as a bell</td>
<td>very clear</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Metaphor</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>a heart of stone</td>
<td>unfeeling, not very nice</td>
</tr>
<tr>
<td>That sound is music to my ears.</td>
<td>a pleasurable sound</td>
</tr>
<tr>
<td>He has the heart of a lion.</td>
<td>He has courage. He is brave.</td>
</tr>
<tr>
<td>I’m dead tired.</td>
<td>very tired</td>
</tr>
<tr>
<td>Love is a fragile flower.</td>
<td>Love is beautiful but delicate.</td>
</tr>
<tr>
<td>Our marriage is on the rocks.</td>
<td>We are having a difficult time in our relation.</td>
</tr>
<tr>
<td>She got cold feet the night before the wedding.</td>
<td>She got nervous and considered not going through with it.</td>
</tr>
<tr>
<td>New York City is often said to be a melting pot of people because it is so diverse.</td>
<td>There are many different kinds of people all living together in one place.</td>
</tr>
</tbody>
</table>
Metaphors in Jason Miller’s Story

In the space provided, respond to ONE of the two prompts below.

1. What effects are created by Miller’s use of metaphors (figurative language) in his story? How would the story be different if he had not used figurative language? Create a metaphor or a simile that describes something you learned about Jason Miller.

2. What does Miller mean when he says “Business is business and when someone opens up their table for you, you respect it, you appreciate it, and you don’t complain when the food runs out?” This is an example of an extended metaphor—what do you think this term means? Why do you think he uses this as a metaphor?
Section 2.3

Jason’s Career Map

Drawing on their experiences with map-reading, students consider the trajectory Jason took and portray it as a map. They focus on the steps he took along his career pathway.

PREP

• Be prepared to define the terms: key, legend, symbol, feature.
• Draw a Career Map based on Jason’s letter, according to the instructions below.

MATERIALS

• Chart paper and markers
• Teacher’s map of Jason’s Career Movement

DISCUSSION

Ask: What is a map?

• A visual representation of a geographic location.

How is it used?

• For navigation. To learn how to travel between points, or how to find where you are, if you’re lost.

Some maps have a key or legend. What does a key on a map usually tell you?

• It includes symbols that correspond to various types of landmarks on the map such as medical facilities and religious buildings.

Why is this important?

• It locates the landmark and identifies its purpose.

Have you ever used a bus map? What are some of the features and symbols on it and what do they represent?

• Example: Different colored lines representing different routes, symbols for terminal stations, express and local stops, dotted lines for detours or construction.

Have you ever used another kind of map? What kind? What was easy or difficult about using it? What are some symbols you might find on a map?

• Straight lines, dotted lines, triangles, circles icons, for example, of mountains or restaurants.

VOCABULARY

key
legend
symbol
feature
Draw Jason’s Career Map

Divide students into groups to draw Jason’s career map. Distribute the paper and markers to each group.

DISCUSS INSTRUCTIONS

1. Take out one piece of loose leaf paper for the group. In order, list the different places Jason either studied or worked. Next to each, list anything Jason did to help him move forward in his career.

   Example: Learning skills in addition to the ones he needed for his current job.

2. On a separate piece of loose leaf paper, draw a map as follows:
   - Write the places he studied or worked and draw a circle around each one.
   - Write the steps Jason took to get to each point on his career path and draw a box around each step.
   - Draw dotted lines connecting the places and actions to show an order of progression.
3. Draw a legend or key, explaining what the circles, boxes and dotted lines mean.

**KEY:**

- **Step** =
- **Job or Education Program** =
- =
Multiple Paths: How Personal Factors Impact Career Movement

Students consider what goes into choosing a career path. What would make someone interested in Construction become a Welder as opposed to a Utility Technician? And in general, what personal factors impact how a worker will change careers?

DISCUSS

What life factors affect whether someone stays at an entry-level career in Construction, or pursues higher-level careers that require degrees and/or advanced training? What life factors might play a role in the pathway workers take?

Write answers on the board.

- **Their interests**, for example, an interest in working with their hands or working with technical equipment.
- **Their time.** A career change might require a lot of training, which they might or might not have time for.
- **Family.** They might need to spend more or less time taking care of family members.
- **Money.** They might have to invest a good deal of money into their education.
- **Limitations.** They might find a particular career is too difficult physically.
- **Career exploration.** They might try a few different careers before they find one that is a good fit.

Write the following questions on the board. Put students into pairs and have them discuss the questions.

- **How does family impact your career choice?**
- **How does time impact your career choice?**
- **How does money impact your career choice?**
- **How does interest or personality impact your career choice?**
- **What else impacts your career choice?**
Now that students have been exposed to many careers and are developing preferences, they will begin to wonder: *How can I work in this field?* In this series, students learn about job training programs—what they are, how to find a good one, and what to expect as a participant. Then they read descriptions of high-quality job training programs in Construction.

**ACTIVITIES IN THIS SERIES**

3.1 • Finding Your Path

3.2 • Job-Seeker Terminology

3.3 • Know Before You Enroll*

3.4 • Apprenticeships in Construction

3.5 • Assessing and Selecting Job Training Programs in Construction

3.6 • A Taste of Training: Reading a Construction Employee Safety Manual
Finding Your Path

Students read an informational text on the differences between certificate, Associate’s and Bachelor’s degree programs, then apply this information to their own career exploration.

PREP

- Review the Three Types of Job Training and Education: Certification, Associate’s and Bachelor’s Degrees reading.

MATERIALS

- Three Types of Job Training and Education: Certification, Associate’s and Bachelor’s Degrees reading

EXPLAIN

1. There are many different paths people take to get the training they need in order to get the jobs they want. Some people are trained while they work in on-the-job training or through apprenticeship programs where participants attend class and put their training into practice under supervision on the job.

Three of the most common types of education or training are certificate programs and Associate’s or Bachelor’s degree programs from a community or senior college or university.

2. Distribute Three Types of Job Training and Education: Certification, Associate’s and Bachelor’s Degrees reading. Ask students to read and annotate it, marking anything that seems important, interesting, surprising or confusing. They should also circle unfamiliar words and write any questions they have in the margins.

3. After students have finished reading, check their understanding with sample questions. Write these questions on the board, as well as the students’ responses.
   - What is certification training?
   - How do you earn a certification?
   - What is an Associate’s degree?
   - Where do you go to earn an Associate’s degree?
   - What is a Bachelor’s degree?
• List some differences between certification training, an Associate’s degree and a Bachelor’s degree.

  › **Length of time:** Certification commonly less than a year; Associate’s degree 2–4 years, Bachelor’s degree 4 or more years.

  › **Course of study:** Certification focused on specific job skills, Associate’s degree can be vocational or liberal arts, Bachelor’s general studies plus a major.

  › **Potential earnings:** On average earnings increase with greater education.

**DISCUSSION QUESTIONS**

You’re helping a friend figure out what job they want and what training they need. What are some questions you would ask to help them figure this out?

• What careers are they interested in? What industries are they interested in?

• What are the training and educational requirements to get this job? Do they need a certification? An Associate’s degree? A Bachelor’s degree?

  **NOTE TO TEACHER:** If an entry-level position does not require training, think about what position you would want to advance to and what training would be required.

• Where do you find that training?

• If there’s a choice between trainings, how will you narrow your choices and decide on one?

What factors would go into their decision?

• Area of interest. What are they interested in?

• Amount of time they can invest in initial education.

• Financial considerations.

• How long they want to spend in preparation. Do they want or need to work as soon as possible?
Three Types of Job Training: Certification, Associate's and Bachelor's Degrees

Many people need education or training in order to get the jobs that they want or need to advance. Some people attend programs that provide certification training in community colleges, community-based organizations, vocational schools or unions. Others attend community colleges and earn an Associate's degree or attend senior colleges and earn a Bachelor's degree. With all these options, how do you decide which one fits your needs?

What is Certification Training?
Certification training often takes less than a year. It is focused on training people to work at a specific job. Upon completion of the training course, graduates may take a certifying exam, given by a government agency or by an outside organization that is recognized by the industry. For example, someone who wants to be a Pharmacy Technician attends a job training program. Upon completion of the course, they take a certification exam held by the National Healthcareer Association. Pharmacy Technician training programs across the country in colleges and vocational schools are designed to prepare participants to pass this national exam. People who hold the certification can go anywhere in the United States and employers will know they are prepared to work as Pharmacy Technicians. Most certification programs require a High School Diploma or Equivalent.

How is it different from an Associate's degree or a Bachelor's degree?
Certification training is short-term training that is focused on the tasks needed for a specific job. The training fees tend to be lower than for degrees, however financial aid programs aimed at helping people afford college often do not apply to this training. Other aid programs, such as Individual Training Grants (ITGs) may apply to people who meet low income guidelines. Certification training is offered in a wide variety of places including community-based organizations, community and senior colleges.

What is an Associate's degree?
A student can earn an Associate's degree by taking about 20 classes to complete coursework in a particular major, or subject of study. Most Associate's degrees are awarded by community colleges, sometimes called junior colleges or 2-year colleges. Some colleges, such as New York College of Technology or the College of Staten Island, offer Associate's degrees as well as Bachelor's degrees or higher. Students can take courses in preparation for a specific career, or they can take classes in general studies or liberal arts where they study a variety of subjects. Credits earned for an Associate's degree can be counted toward completion of a Bachelor's degree. The average annual salary in 2014 for New York City workers with an Associate's degree was $45,000.

Adapted from:
https://neha.org/professional-development/education-and-training/differences-between-credentials-certifications
https://www.careeronestop.org/FindTraining/Types/college.aspx
https://study.com/articles/Difference_Between_an_Associate_Degree_and_Bachelors_Degree.html
Common Associate’s degree programs include studies in fields such as Art and Design, Business, Communication, Dental Hygiene, Culinary Arts, Electronics, Healthcare, Human Services and Health Information Technology. Students who may want to transfer their credits to a Bachelor's degree program, but aren’t sure which major they want to pursue, may earn an Associate’s degree in Liberal Arts. Typically, most credits from Liberal Arts transfer to Bachelor’s degree programs. A High School Diploma or Equivalent is required for entrance into community college.

How is it different from certification programs and a Bachelor’s degree?

An Associate’s degree is a college degree. Credits earned by passing classes can be transferred to a senior college if the student decides to pursue a Bachelor’s degree. This can be done immediately after completion of an Associate’s degree or several years in the future. Most certification programs do not lead to college credits or a college diploma.

Associate’s degrees generally require half the number of credits and take half as long to earn as Bachelor's degrees. An Associate’s degree takes less time, but many jobs require Bachelor's degrees.

What is a Bachelor’s degree?

A student can earn a Bachelor’s degree by completing approximately 120-semester credits or roughly 40 college courses in a particular major. A Bachelor’s degree includes both general education or liberal arts courses in areas such as English, psychology, history, and math, as well as credit hours in the major area of study. In most cases, 30 to 36 credits are in the major study area. The average annual salary in 2014 for New York City workers with a Bachelor’s degree was $65,000.

The three most common degree types are a Bachelor of Arts (B.A.), a Bachelor of Science (B.S.), and a Bachelor of Fine Arts (B.F.A). A B.A. is typically considered less job-oriented than some other degree options. These degrees are designed for those with an interest in the liberal arts, such as literature, philosophy, mathematics, and social and physical sciences. A B.S. is considered more career-focused. For example, degrees in the medical, business, engineering or technology fields are often Bachelor of Science degrees. Individuals pursuing a B.F.A are typically those interested in entering creative arts fields. Students pursuing B.F.A.s often aspire to be dancers, actors, singers, painters, and sculptors. A High School Diploma or Equivalent is required. Colleges often require additional testing or have additional requirements.

How is it different from certification programs and an Associate’s degree?

A Bachelor’s degree takes the longest of the three options. Bachelor's degrees are sometimes referred to as four-year degrees. However, due to personal and financial considerations, students often take longer than four years to complete a Bachelor's degree. Although it takes longer to earn a Bachelor's degree, on average people with Bachelor's degrees have more employment options and tend to earn more money than those with only Associate’s degrees or certification. A Bachelor’s degree is necessary for employment in many professional careers such as Teaching or Engineering. A Bachelor’s degree is a requirement to advance from entry-level to higher-level positions in many fields.
Job-Seeker Terminology

Students learn vocabulary relevant to a job search in any sector, by matching job search terms to their definitions.

PREP
Create one index card for each student, containing either a type of Job-Seeker term or a description of the term. It’s okay if some of them repeat.

EXPLAIN
1. Explain that there is certain vocabulary relevant to a job search in any sector, and that we’ll be going over them today.
2. Distribute one card to each student, making sure each card has a match, and ask students to find their match.
3. Once students find their match, have pairs share their description with the class.
4. Discuss definitions as a class.
<table>
<thead>
<tr>
<th>Job-Seeker Terminology</th>
<th>Definition of Job-Seeker Terminology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Training</td>
<td>A program, either fee-based or free, in which participants learn a specific workplace skill, such as refrigerator repair or commercial driving. May include job search assistance.</td>
</tr>
<tr>
<td>Job Placement</td>
<td>A service that assists participants in applying for jobs. It may be part of a job training program or may exist on its own.</td>
</tr>
<tr>
<td>Job Readiness</td>
<td>Teaches general workplace skills such as professional dress and communication, how to write a resume and cover letter, how to prepare for an interview, and workplace expectations such as punctuality and cell phone use.</td>
</tr>
<tr>
<td>Career Advisement/Coaching</td>
<td>One-on-one meetings to discuss a job-seeker’s interests and skills, where to look for jobs and educational opportunities.</td>
</tr>
<tr>
<td>Employment Agency or Office</td>
<td>A company, hired by businesses, to interview and hire new employees, and used by job-seekers to find jobs.</td>
</tr>
<tr>
<td>Degree</td>
<td>A document earned from a college or university showing completion of coursework in a particular area of study. Usually requires a minimum of 2-3 years.</td>
</tr>
<tr>
<td>Certificate</td>
<td>A document earned from a college or university, community based organization, union or private company, showing mastery of a specific job-related skill.</td>
</tr>
<tr>
<td>Apprenticeship</td>
<td>“Earn while you learn.” This is paid training in a particular job-related skill, often including classroom and work experience hours. Participants are sometimes hired by the company that trained them and sometimes receive job placement assistance. They are common in the building trades and more recently in the culinary arts.</td>
</tr>
<tr>
<td>Pre-Apprenticeship</td>
<td>A program that provides participants with the skills they need to participate in a paid training program, such as literacy and math skills related to the job.</td>
</tr>
<tr>
<td>Internship/Field Placement/Practicum</td>
<td>Supervised work experience and workplace-based training often done for school or college credit. It may be accompanied by or part of a class in which training experiences are discussed.</td>
</tr>
<tr>
<td>Trainee</td>
<td>A person who is being trained in a particular job. Most trainees are paid for their training.</td>
</tr>
<tr>
<td>Probation</td>
<td>A period early in employment during which an employee must demonstrate her competency at her job before being considered a permanent employee.</td>
</tr>
</tbody>
</table>
Section 3.3

Know Before You Enroll*

Students learn how to choose a high quality job training program by reading a training program selection tip sheet and using it to write a letter of advice to a young person in their life who is planning to enroll in a job training program.

PREP

• Read the Know Before You Enroll tip sheet.

MATERIALS

• Know Before You Enroll tip sheet
• Job Training Advice Letter writing assignment

EXPLAIN

1 The New York City Mayor's Office discovered that many students were graduating from job training programs with a lot of debt and without jobs or useful certifications promised by the programs. They created an ad campaign to help New Yorkers choose high quality training programs that would help them be prepared for and find employment in their field. Although it was created in New York City, much of the advice applies to job training programs anywhere.

2 Distribute the Know Before You Enroll tip sheet, and ask students to read and annotate it. In particular, they should underline and take notes about:

   Any tips in the handout that seem like good ideas, or ones that they hadn’t thought about before.

   Anything that is confusing to them.

3 Have students share their ideas from the handout in small groups.

Which were the best ideas from the handout, and why? What questions did you have or which parts, if any, seemed confusing?
4. Tell students that they will now use what they learned for a writing assignment. It’s often good to look back at a reading to check what it says, but it’s also good to turn it over and not look at it, to challenge your memory of what it said, and to make sure you’re writing about it in your own words. Tell students to put away their handout to write.

5. Distribute the writing assignment and review the directions.

6. Before they write, ask students to discuss in pairs the best pieces of advice from the reading (without looking at the reading).

7. Once students have written the letters, ask them to re-read the tip sheet and mark any points they remembered incorrectly, or any useful points they did not include. Then revise their letters to include these points, putting all information in their own words.
Know Before You Enroll Tip Sheet

THE ISSUE
As the number of enrollees in job training programs grows, there is concern about these schools’ high cost and aggressive marketing. For-profit schools widely market their services on subways and buses, TV and radio, and in community and ethnic newspapers, but many students are unaware of the potential implications of enrolling in a for-profit school or of the free and low-cost education and training programs that are available.

“\nI saw an ad on TV for a two-year school where I could learn graphic design and threw away $25,000 on a worthless diploma. My credits don’t transfer toward a bachelor’s degree, and the school never helped me get the internships and jobs they promised.

Thanks to the City’s Financial Empowerment Centers, I’m paying back my loans and saving to go to CUNY.”

– Garvin, Brooklyn

Know Before You Enroll
Visit nyc.gov or call 311 and ask about free and low-cost education and training options and financial counseling.

Know Before You Enroll

Before you take on debt or pay to enroll in a school or training program, do your homework first. Here are 10 important tips to help you protect your money.

1. **Free and low-cost adult education and training options are available.** Visit nyc.gov or call 311 and ask about free and low-cost adult education and job training options. You can attend classes at the Department of Education, City University of New York (CUNY), public libraries, community-based organizations, Workforce1 Career Centers, and more.

2. **If a school or training program sounds too good to be true, it probably is.**

3. **Research, research, research.** Consider multiple schools before deciding which one is right for you. Ask for information on graduation and completion rates, student loan debt, and whether or not the credits you get will transfer to other schools. Sit in on a class, ask to speak to former students who have completed the program, and visit nyc.gov to read reviews from real students in the NYC Training Guide. Ask to see a list of employers that hire graduates, and call those businesses to ask their opinion of the school. You should also research the general field you’re interested in to make sure it’s the right fit and there’s potential for job availability and growth.

4. **Avoid unlicensed schools.** Some schools are operating illegally. If you go to an unlicensed school, you can’t take exams to become licensed in many fields such as nursing. Visit nyc.gov or call the New York State Education Department at (212) 643-4760 or (518) 474-3939 to check if a vocational or trade school is licensed. Remember, even if a school has a license, it might not be well run, so research the school before you sign up. Call 311 or visit nyc.gov to file a complaint about an unlicensed school.

5. **Don’t sign up the day you visit a school.** Before you sign up, you need to understand how much the program will cost and how you will pay for it. Do not make such an important decision on the spot! Take your time, and research the school. Visit nyc.gov for the NYC Training Guide to learn more about specific schools and programs.

6. **Never sign anything you don’t understand.** If a school pressures you to sign a contract or agreement on the spot, walk away. You have the right to bring home important forms so you can read them more carefully and review them with people you trust.

7. **Ask for the school’s tuition cancellation policy in writing.** The policy should describe how you can get a refund if you need to cancel or withdraw. However, once you have signed up, it can be tough to get your money back.

8. **Be careful of taking on a lot of debt.** Some schools charge tens of thousands of dollars. Often, the “financial aid” that is available isn’t free money, but rather loans you have to pay back—with interest. School loans last a long time, and there’s a limit on how much money you can borrow. Loans can also lower your credit score if you don’t pay them back on time. Make sure you understand the terms and will be able to make the payments. Remember that free and low-cost education and training options are available. See tip #11.

9. **Avoid schools that “guarantee employment” after you graduate.** A school can’t guarantee that you’ll get a job when you graduate. Many times, the schools that make these types of promises don’t actually place you in a job.

10. **You have the right to file a complaint.** Did you enroll in a school or training program but didn’t get what you were promised? Call 311 or visit nyc.gov to file a complaint.

**Are you in debt from school?**

Visit nyc.gov or call 311 and ask for an NYC Financial Empowerment Center, where you can get free one-on-one professional financial counseling.
Job Training Advice Letter

Imagine that your nephew/cousin/friend is planning to enroll in a job training program. Write a letter of advice, explaining what they should do to make sure they choose a high quality program that will help them meet their career goals. In your letter, make sure to use and explain the best pieces of advice you learned from the reading. The letter is started for you below.

Dear ________________,

I heard that you were planning to enroll in _________________. I'm excited for you, and I also wanted to offer some advice before you enroll. ________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

The letter is completed below:

Dear ________________,

I heard that you were planning to enroll in _________________. I'm excited for you, and I also wanted to offer some advice before you enroll. ________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

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________________________________________________________________________
Apprenticeships in Construction

Students read an informational text about apprenticeships in the Construction industry, practice previewing texts and identifying text features, and practice writing summaries.


PREP

• Read Apprenticeships in Construction handout
• Write the following questions on the board:
  1. What do you think of when you hear the word “apprentice” or “apprenticeships”?
  2. Have you or anyone you know ever been an apprentice either formally or informally?
  3. What kinds of things do you think someone might learn as an apprentice in a Construction trade?

MATERIALS

• Apprenticeships in Construction handout

EXPLAIN

1 Today we will be reading an article called “Apprenticeships in Construction.”
   What is an Apprenticeship?
   
   Apprenticeships are paid on-the-job and classroom-based trainings where a worker new to the field works under the close supervision and guidance of an experienced worker. Apprenticeships are a major form of training in the Construction industry.

2 Talk for 2 minutes with a partner about the questions on the board:

   1. What do you think of when you hear the word “apprentice” or “apprenticeships”?
   2. Have you or anyone you know ever been an apprentice?
   3. What kinds of things do you think someone might learn as an apprentice in a Construction trade?
3. Bring the class together and ask students to share some of their conversations.

4. As a class, develop working definitions for the words: apprenticeship, qualifications, application, lottery.

5. Return to your partner and write questions you have about apprenticeship programs in Construction. After 2 minutes, each pair should share one question. Write these on the board. (Alternatively, have each pair come to the board and write their own question).


   Say: Successful readers preview the text to get an idea of what they will learn. Look at the title and the subtitles, then discuss:

   1. After looking at the subtitles, what are some things you will probably learn from reading this article?

   2. Which, if any, of our questions will likely be answered?

7. Begin by reading the first part of the article (“What Apprenticeship Is”) out loud. What are you visualizing as you read? What clues are telling you about time?

   Full-time...while they learn...at night or on weekends.

   NOTE: If you have lower level students, you may want to do a think-aloud for the first two paragraphs.

8. Say: Successful readers have goals when they read—usually it is a question in their minds that they hope the text will answer. A good way to keep track of what they are reading is to turn subtitles into questions. Work with students to turn all the numbered subtitles into questions. Provide a model by showing how the subtitle of the first section “What Apprenticeship Is” would be reworded as “What is Apprenticeship?”

9. Ask students to read the rest of the article silently. You may want to have lower level students read the articles in chunks, stopping after each subtitled section to jot down notes or underline. You can also stop the class at various intervals and review what has been learned so far from the article. This gives students a chance to recall, monitor understanding, and pool their understandings of the text.

10. As a large group, discuss:

    Were your questions about apprenticeships in Construction answered? Did the information in this article impact you personally? How?
Introduce **summarization**. Tell students that they will now write summaries of the article in sections. The reason for this is that 1) it will give them a chance to review what they read and 2) it will help them remember what they read. Point out that no one can remember everything they read. Instead they remember the main idea or the important information. Writing summaries is excellent practice for getting better at identifying what is important in a text and what they need to remember.

If applicable, remind students that one of the most often-asked questions on the TABE or TASC exam is “what is the main idea? Or “what is the best summary?” This is a hard skill to learn! What are some ways to begin understanding the concept? One way is to think about **general categories** and **specific examples**. A good analogy comes from the supermarket. If you wanted to buy lettuce, tomatoes and onions, what aisle of the supermarket would you look in? Produce. Produce is the **general category**. Lettuce, tomatoes and onions are the **specific examples**. You can have students practice this by writing the following questions on the board:

**In the sets below, which represents a general category, and which are specific examples?**

<table>
<thead>
<tr>
<th>A. Milk</th>
<th>C. Juice</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Coffee</td>
<td>D. Beverages</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A. U.S. Cities</th>
<th>C. Los Angeles</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Chicago</td>
<td>D. Washington DC</td>
</tr>
</tbody>
</table>

Now ask students to look at Section 1, “What Apprenticeship Is.” **Do they see a general statement?** **Do they see supporting details?** Using this method, try to get students to see that the main idea is in the first two sentences.
Ask students to reread this section, then write the sentences below on the board (or give as a handout). Ask students to tell you which is the best example of the main idea and why:

Apprenticeship is a kind of training program where participants receive on-the-job training with a skilled worker and classroom instruction at the same time.

Apprentices take classes at night and on the weekends.

Through discussion, establish that a summary should include all the general information in as small a space as possible, not focus on too many details, and be in their own words.

Now ask students to repeat the process for the next section: “Apprenticeships in Construction.” Identify the main idea sentences and the detailed examples. This time, ask students to work in pairs to write a one-sentence summary for the section. Have a few pairs write their summary sentence on the board. As a class, look at the sentences. Which one captures the main idea/important information best? As a class, you can revise some of the student sentences on the board to make them stronger summaries.

Ask students to write a one-sentence summary for each of the remaining sections on a separate sheet of paper. They can do this in pairs or finish it for homework.
Apprenticeships in Construction*

This informational text is compiled and adapted from https://labor.ny.gov/apprenticeship/, http://www.constructonskills.org/pages/at.html and interviews with industry experts.

1. What Apprenticeship Is

Apprenticeship is a time-honored approach to training workers through a combination of on-the-job training and classroom instruction in a skill or trade. Apprentices produce high-quality work while they learn skills that enhance their employment prospects. An apprentice works under the close supervision of a skilled worker on the job and takes related classes at night or on weekends. Apprentices are employees of the employer sponsoring the apprenticeship. Apprenticeships are offered in a wide range of industries, but are very common and highly sought after in the Construction industry.

2. Apprenticeships in Construction

The majority of Construction workers employed by unions enter their jobs through apprenticeship programs that are approved by and registered with the U.S. Department of Labor (DOL). These programs are sponsored and paid for by the union. There are also registered apprenticeships offered through non-union Construction employers, however this is less common. Apprenticeships that are registered with the DOL are verified high quality programs that meet national standards set by the DOL.

Apprentices who enter the Construction industry attend classes paid for by unions and contractors, while simultaneously being employed on projects in their craft. As part of a registered apprenticeship program, apprentices receive a minimum of 144 hours of annual classroom instruction. This may include adult education courses or classes at community colleges, industry factories or union facilities. In some apprenticeship programs, taking these classes may also earn you an Associate’s degree! Some programs even offer additional funding for employees who then want to pursue Bachelor’s, Master’s or professional degrees.

3. What Apprentices Earn

Apprentices earn approximately $15–20 per hour plus benefits, such as health insurance, paid vacations and holidays and retirement plans. As apprentices’ skills increase, so do their wages. All training is paid for by the apprenticeship program. At the successful conclusion of apprenticeship training, which typically lasts 3-5 years depending on the trade, apprentices graduate to Journey workers. Journey workers are recognized as the most qualified members of their craft and are paid top wages and benefits. Journey
workers earn approximately $30–40 per hour plus benefits. Construction apprenticeships are extremely coveted positions, as they are a source of free training while getting paid considerable wages and benefits, all while carving out a career path for the future.

3. Qualifications for Apprenticeship

Construction skills or prior experience is not typically not required to be considered for an apprenticeship, however other qualifications vary depending on the program. All New York State registered apprenticeship programs require applicants to be 18 years old (or 17 with a guardian signature) at the time of employment, eligible to work in the United States and physically able to do the job. Most programs also require a high school diploma or equivalent certificate (HSE), and/or the completion of some mathematics courses. It’s important to know that some Construction trades require considerable physical stamina. Most apprenticeship programs also require apprentices to pass a drug screening once they are selected.

4. Finding Apprenticeship Opportunities

All registered apprenticeship openings in New York are listed online at the New York State Department of Labor (NYS DOL) website at https://labor.ny.gov/pressreleases/ApprenticeshipArchive.shtml. People who are interested in becoming an apprentice should check the public notices for recruitments to find out about new openings. In addition, you can find listings at New York’s Job Bank at www.labor.ny.gov or get more information about apprenticeships at any Department of Labor Career Center or the NYS DOL Apprenticeship Training Program office in your region. You can also contact unions directly through their websites or by calling to inquire about recruitment.

It is important to make sure the apprenticeship program you are interested in is registered with the DOL. Registered apprenticeship programs meet high standards of quality and their certificate of completion will be recognized nationally, which make your skills mobile, should you ever need or want to move out of state.

5. General Recruitment and the Lottery System

Apprenticeship programs in Construction typically run a general recruitment for new apprentices once or twice a year. Some programs take in new classes of apprentices every month or every other month, but this is less common. When a general recruitment process opens to the public, the apprenticeship program will announce the date and time applications will open through a press release which will be posted on the DOL apprenticeship website and the New York Job Bank website, as well as the sponsoring union or contractor’s website. The announcement will specify how many apprenticeship openings are available. This could be anywhere from a handful to hundreds of openings, depending on the demand for the trade.
People who are interested in applying must go to the location designated in the announcement to fill out a lottery application during the open application period. Only a certain number of lottery applications will be given out. Once that number is met, the recruitment will close. The program will put all of the lottery applications in a locked box and draw names for the number of positions available. Applications will typically be kept on file for a certain amount of time and as more apprenticeship positions become available, more names will be drawn. This lottery system was developed in an effort to make the process fair and equal. Due to the limited opportunities for apprenticeships in Construction, sometimes hundreds or thousands of people wait in line for many days outside of the application site waiting to get a lottery application.

6. Pre-apprenticeship Programs

Pre-apprenticeship programs train participants for a certain number of weeks or months, giving them a foundational skill set with which to enter a full apprenticeship program. Pre-apprenticeship programs provide an opportunity for hopeful apprentices to get into a unionized apprenticeship program without having to go through the lottery system. Many unions that offer apprenticeship programs reserve a certain percentage of their openings for pre-apprenticeship graduates. Once pre-apprentices have successfully completed the program, the pre-apprenticeship program works to place them with an affiliated union. Pre-apprenticeship graduates do not have to apply for the general recruitment lottery.

Pre-apprenticeship programs are typically full-time, unpaid opportunities lasting anywhere from 6 weeks to several months. Some pre-apprenticeship programs may offer a modest stipend upon completion, but this is meant to assist graduates with union dues once they are employed as an apprentice. These stipends are not enough to cover living expenses. In order to apply to pre-apprenticeship programs, you must typically be 18 years old, eligible to work in the United States, physically able to do the work, and have a high school diploma or equivalent (HSE).

A few high quality, pre-apprenticeship programs in New York City include:

- Construction Skills: www.constructionskills.org
- BuildingWorks: https://www.nypl.org/blog/2014/07/30/building-works-pre-apprenticeship-training

7. What if I don’t get in?

Apprenticeship and pre-apprenticeship programs are highly coveted and there are a limited number of openings, so not everyone who wants to be an apprentice will get the opportunity. However, there are plenty of other ways to enter the Construction industry and gain the training necessary to pursue your career goals. Later in this unit, you’ll learn more about other job training programs and opportunities for those just starting out in Construction and those wanting to continue building their skills as they work.
Assessing and Selecting Job Training Programs in Construction

Students learn about local job training programs by researching training websites and discussing their findings.

PREP

• This activity references a prior lesson, *Know Before You Enroll*. It is recommended that all lessons in the series be done sequentially. If you have not done that lesson, you may want to incorporate the *Know Before You Enroll* tip sheet into this lesson.

• Check the links on the *Sample Job Training Programs* handout to make sure that they are still active. If any have become inactive, find an updated link for the training program or choose a new program to highlight.

MATERIALS

• Computers are recommended for this activity. If not available, use the job training websites listed in the directions below and print out program information to distribute paper copies to students.

• *Developing Research Questions for Job Training Programs* worksheet

• *Job Training Program Research* worksheet

• *Sample Job Training Programs* handout

EXPLAIN

1 One way to enter the workplace is through a job training program.

What is a job training program?

➢ *Shorter term programs (typically less than a year) that focus on skills needed for specific jobs.*

Why would someone want to do a job training program instead of going to college?

➢ *It might be less expensive than college, not as much time is required, it prepares participants for a specific job that requires only a short-term training program.*
Today you will research job training programs in a variety of job sectors, including ones for Woodwork, Ironwork, Plumbing and Construction Electricity. Before you read about these programs, brainstorm with a partner questions you might ask when investigating them.

Share your list of questions with the class. The teacher will take notes on the board to create a master list of questions, and add questions that students may not have thought about.

Some key questions include:

- What are the program requirements?
- How long is the training program? What is the schedule?
- What will I learn in the training?
- What kinds of jobs does the training prepare people for?
- How much (if anything) does the training program cost?
- Is there any financial aid available?
- What does the program do to help graduates find jobs?
- What are the job placement rates for graduates?

Distribute the Developing Research Questions for Job Training Programs worksheet. Write 6 questions from your brainstorm or others you want answered when you research job training programs.

Distribute the Job Training Program Research worksheet and the Sample Job Training Programs handout and let students choose from the training program websites listed to research a training program. You may want to have students work individually or they can work in small groups according to their program choices.

Ask students to complete the Job Training Program Research worksheet. Circulate to help students notice which information is and isn’t on the website.

When students are finished, they can share or present their research to the class. Student should make sure to include in their presentation whether they believe their program is a high-quality training program or not and explain their reasoning based on evidence.

Discuss as a class what they learned from this activity, what skills they practiced and how they might use the skills and information in the future.
Developing Research Questions for Job Training Programs

Write six questions you would like answered about your chosen job training program.

1.

2.

3.

4.

5.

6.
**Job Training Program Research**

Now that you have researched your chosen job training program, use the *Know Before You Enroll Tips* to try to determine the quality of the program. For each tip in the left column, discuss how your job training program does or does not measure up and how you determined this.

Job Training Program Name: ________________________________

Program Location/Company: ________________________________

<table>
<thead>
<tr>
<th>Know Before You Enroll Tip</th>
<th>How Does My Job Training Program Measure Up?</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 Free and low-cost adult education and training options are available.</td>
<td></td>
</tr>
<tr>
<td>#4 Avoid unlicensed schools.</td>
<td></td>
</tr>
<tr>
<td>#7 Ask for the school’s tuition cancellation policy in writing.</td>
<td></td>
</tr>
<tr>
<td>#9 Avoid schools that “guarantee employment” after you graduate.</td>
<td></td>
</tr>
</tbody>
</table>

Do you consider your job training program to be of high quality? Why or why not?

What additional questions do you have?

Are you interested in this training? If yes, why? If no, how can this research activity assist you in researching training programs in your field?
Sample Job Training Programs

Below are a few of the available job training programs in Construction. Many others are available throughout New York State.

- **Brooklyn Workforce Innovations/Brooklyn Woods**
  [https://bwiny.org/brooklyn-woods/overview/](https://bwiny.org/brooklyn-woods/overview/)

- **Helmets to Hardhats (for Veterans only)**
  [https://helmetstohardhats.org](https://helmetstohardhats.org)

- **Nassau BOCES** (various Construction trades programs, choose one)
  [https://www.nassauboces.org/Page/8498](https://www.nassauboces.org/Page/8498)

- **Brooklyn Workforce Innovations/NYCHA Resident Training Academy**
  [https://bwiny.org/nycha-resident-training-academy/overview/](https://bwiny.org/nycha-resident-training-academy/overview/)

- **Laguardia Green Ladders Job Training Program**
  [http://greenladders.org](http://greenladders.org)

- **Jobs to Build On**
  [http://www.jobstobuildon.org/pages/job_training.html](http://www.jobstobuildon.org/pages/job_training.html)
A Taste of Training: Reading a Construction Employee Safety Manual

Students practice note-taking while learning about safety practices on a Construction site through reading an employee safety manual. After reading the manual, they assess their note-taking skills by taking a quiz using their notes.

PREP

• Read the OSHA Construction Safety Manual handout

MATERIALS

• OSHA Construction Safety Manual handout
• Quiz: Safety in Construction
• Safety in Construction answer key

EXPLAIN

1 Construction sites are fast-paced places filled with activity, machinery, equipment, and projects at various stages of completion. Safety on the job is a big priority in this sector. All Construction workers receive safety training and many Construction projects require extensive training.

In 2017, New York City passed Local Law 196, increasing the number of hours of OSHA-approved safety training required for many kinds of Construction projects in the city. OSHA is the Occupational Safety and Health Administration. It is part of the United States Department of Labor. It was created in 1979 to assure safe working conditions by setting and enforcing standards and by providing training, outreach, education and assistance. Since the passing of Local Law 196, most Construction workers in NYC are now required to take a minimum of 40 hours of safety training in order to work on a job site, with the exception of sites that involve only minor changes to a structure or the construction of a new 1, 2, or 3-family home. Of Construction jobs advertised online in 2017, OSHA safety training certificates were the #1 certificate desired by employers.

Why do you think safety is such a big priority in Construction? What are some potentially dangerous things you might find at a Construction site?
Lesson Guide

Section 3.6

1. Cutting tools such as saws, drills, grinders
2. Demolition tools such as jack hammers and explosives
3. Heavy equipment such as cranes and forklifts
4. Breakable materials such as glass and ceramic
5. Workers often have to complete tasks while standing on scaffolding or otherwise at dangerous heights they could potentially fall from

2. Ask if any of the students in the class have worked on a Construction site. If so, ask them to describe their experiences with the safety expectations and procedures.

3. We’re going to read an excerpt from an OSHA Construction Safety Manual. While you read the manual, you are going to take notes on the important points. Then you are going to take a quiz on the manual. You may use your notes for the quiz. As you read, you should underline important parts. On a blank sheet of paper, write down key concepts, important points, and things you want to remember. When you take the quiz, you will be able to use your notes, but not look at the reading.

4. Distribute OSHA Construction Safety Manual. Ask students to read the manual and take notes on a separate sheet of paper. They can annotate the manual itself (i.e. underlining important points) but remind them that they can only use their separate sheet of notes for the quiz.

5. Get into pairs and compare notes with your partner. Reread the safety manual a second time to see if you missed any important points. Remember, don’t underline everything or write everything down word for word. Instead, identify key words, big ideas or interesting points.

6. Ask students to put the reading away, and distribute Quiz: Safety in Construction. Ask students to take the quiz. Explain that they should work on it alone, and that they should use their notes to answer the questions.

7. Now exchange papers with your partner and have your notes and the manual in front of you. Correct each other’s answers based on your notes and the safety manual.

8. Ask for volunteers to discuss their answers. You can use the Safety in Construction answer key to support the discussion. Ask students to return their partner’s paper with corrected answers.
DISCUSS

- How was this experience of reading the manual, taking notes, and using the notes for information?
- What was challenging?
- What skills did you use?
- What kinds of information did you catch the second or third time you read the manual that you did not catch the first time?
- How can this activity be applied to other subjects?
- What did you learn about your note-taking?
Construction Safety Manual

Preventing Fatalities

Did you know?
One of every five workplace fatalities is a Construction worker.

Despite its high fatality rate, Construction can be a safe occupation when workers are aware of the hazards and their employer implements an effective Safety and Health Program. There are numerous hazards that can lead to serious injury in the Construction industry. The hazards addressed here have been selected because statistics show they cause most Construction-related fatalities. An effective Safety and Health Program should focus on these areas to help ensure that potentially fatal accidents are prevented.

The following hazards commonly cause the most serious Construction injuries:

- Electrical Incidents
- Falls
- Struck-By

Electrical Incidents

Did you know?
Approximately 350 electrical-related fatalities occur each year.

Electricity has become essential to modern life. Perhaps because it is such a familiar part of our surroundings, it often is not treated with the care it deserves. Safety and health programs must address electrical incidents and the variety of ways electricity becomes a hazard. In general, OSHA requires that employees not work near any part of an electrical power circuit unless protected. The following hazards are a few of the most frequent cause of electrical injuries:

- Contact with Power Lines
- Equipment Not Used in Manner Prescribed
- Improper Use of Extension and Flexible Cords
**How Electrical Shocks Occur:**

Electricity travels in closed circuits. A **closed circuit** means a complete electrical connection around which electricity flows or circulates. When you have a series of electrical wires connecting to each other and completing a circuit so that current travels from one end of the circle to the other, this is an example of a **closed circuit**.

Electrical shock happens when the body becomes part of the closed circuit. Electricity enters the body at one point and leaves at another. Typically, shock occurs when a person contacts:

- One wire of an energized circuit and the ground.
- Both wires of an energized circuit.
- A metallic part in contact with an energized wire while the person is also in contact with the ground.

**Contact With Power Lines:**

**Am I In Danger?**

Overhead and buried power lines at your Construction site are especially hazardous because they carry extremely high voltage. Fatal electrocution is the main risk, but burns and falls from elevations are also hazards. Using tools and equipment that can contact power lines increases the risk.

**Examples of Equipment That Can Contact Power Lines:**

- Aluminum paint rollers
- Backhoes
- Concrete pumpers
- Cranes
- Long-handled cement finishing floats
- Metal building materials
- Metal ladders
- Raised dump truck beds
- Scaffolds

Overhead power lines are un-insulated and can carry tens of thousands of volts, making them extremely dangerous to employees who work in their vicinity.
**How Do I Avoid Hazards?**

- Look for overhead power lines and buried power line indicators. Post warning signs.
- Contact utility companies to identify buried power line locations.
- Stay at least 10 feet away from overhead power lines.
- Unless you know otherwise, assume that overhead lines are energized.
- Use wood or fiberglass ladders when working near power lines. These materials are not conductors of electricity.

---

**Falls**

*Did you know?*

**Falls from elevation account for one third of all deaths in Construction.**

Falls are the leading cause of fatalities in the construction industry. An average of 362 fatal falls occurred each year from 1995 to 1999, with the trend increasing in recent years.

It is important that safety and health programs contain provisions to protect workers from falls on the job. The following hazards cause the most fall-related injuries:

- Unprotected Sides, Wall Openings, and Floor Holes
- Improper Scaffold Construction
- Unguarded Protruding Steel Rebar
- Misuse of Portable Ladders

**Misuse of Portable Ladders**

*Am I In Danger?*

You risk falling if portable ladders are not safely positioned each time they are used. While you are on a ladder, it may move and slip from its supports. You can also lose your balance while getting on or off an unsteady ladder. Falls from ladders can cause injuries ranging from sprains to death.

*How Do I Avoid Hazards?*

- Position portable ladders so the side rails extend at least 3 feet above the landing.
- Secure side rails at the top to a rigid support and use a grab device when 3 foot extension is not possible.
- Make sure that the weight on the ladder will not cause it to slip off its support.
Before each use inspect ladders for cracked or broken parts such as rungs, steps, side rails, feet and locking components.

- Do not apply more weight on the ladder than it is designed to support.
- Use only ladders that comply with OSHA design standards.

### Struck-By

**Did you know?**

One in four “struck by vehicle” deaths involve Construction workers. This is more than any other occupation.

Struck-by objects is another leading cause of Construction-related deaths. Approximately 75% of struck-by fatalities involve heavy equipment such as trucks or cranes.

Safety and health programs must take into account the many ways struck-by accidents can occur. The following related hazards cause the most struck-by injuries:

- Vehicles
- Falling/Flying Objects
- Constructing Masonry Walls

### Falling/Flying Objects

**Am I In Danger?**

You are at risk from falling objects when you are beneath cranes, scaffolds, etc., or where overhead work is being performed. There is a danger from flying objects when power tools, or activities like pushing, pulling, or prying, may cause objects to become airborne. Injuries can range from minor abrasions to concussions, blindness, or death.

**How Do I Avoid Hazards?**

**General**

- Wear hardhats.
- Stack materials to prevent sliding, falling, or collapse.

**Power Tools, Machines, etc.**

- Use safety glasses, goggles, face shields, etc., where machines or tools may cause flying particles.
- Inspect tools, such as saws, to ensure that protective guards are in good condition.
Cranes and Hoists
• Avoid working underneath loads being moved.
• Barricade hazard areas and post warning signs.
• Inspect cranes and hoists to see that all components are in good condition.
• Do not exceed lifting capacity of cranes and hoists.

Overhead Work
• Secure tools and materials to prevent them from falling on people below.
• Barricade hazard areas and post warning signs.
• Use scaffolds, debris nets, or screens to prevent falling objects.

Workers’ Rights
Workers have the right to:
• Working conditions that do not pose a risk of serious harm.
• Receive information and training (in a language and vocabulary the worker understands) about workplace hazards, methods to prevent them, and the OSHA standards that apply to their workplace.
• Review records of work-related injuries and illnesses.
• File a complaint asking OSHA to inspect their workplace if they believe there is a serious hazard or that their employer is not following OSHA’s rules. OSHA will keep all identities confidential.
• Exercise their rights under the law without retaliation, including reporting an injury or raising health and safety concerns with their employer or OSHA. If a worker has been retaliated against for using their rights, they must file a complaint with OSHA as soon as possible, but no later than 30 days.

How to Contact OSHA
Under the Occupational Safety and Health Act of 1970, employers are responsible for providing safe and healthful workplaces for their employees. OSHA’s role is to ensure these conditions for America’s workers by setting and enforcing standards, and providing training, education and assistance. For more information, visit www.osha.gov or call OSHA at 1-800-321-OSHA (6742), TTY 1-877-889-5627.
QUIZ: Safety in Construction

Answer the questions below in as much detail as you can.

1. What percentage of workplace fatalities happen in the Construction industry?

2. Describe what a “closed-circuit” is and how a person can get an electrical shock.

3. What is the minimum distance a worker should keep from overhead power lines? Explain why.

4. Name two examples of equipment that could come into contact with power lines on a Construction site. Explain why this would be dangerous.

5. ________________ are the leading cause of fatalities in the Construction industry.
6. Name two reasons why someone might hurt themselves using a ladder.

7. True or False: Workers have the right to file an anonymous complaint with OSHA if they believe they are working in an unsafe Construction environment. OSHA will investigate the job site and keep the worker’s identity a secret.

8. What are two ways to avoid injury when working around cranes and hoists?

9. How can workers protect themselves from being struck by falling objects?

10. Does an employer have the right to fire a worker because the worker reported a suspected unsafe construction site? Why or why not?
ANSWER KEY

Safety in Construction

1. What percentage of workplace fatalities happen in the Construction industry?
   20% (One of every five workplace fatalities is a construction worker.)

2. Describe what a “closed-circuit” is and how a person can get an electrical shock.
   A “closed-circuit” is when electricity flows in a complete circle. A person can get an electrical shock if they become part of the “closed-circuit,” as the electricity enters and leaves their body.

3. What is the minimum distance a worker should keep from overhead power lines? Explain why.
   Workers should stay a minimum of 10 ft. away from overhead power lines. This is because overhead power lines are un-insulated and can carry tens of thousands of volts, making them extremely dangerous to employees who work near them.

4. Name two examples of equipment that could come into contact with power lines on a Construction site. Explain why this would be dangerous.
   Any two of the following: Aluminum paint rollers, Backhoes, Concrete pumpers, Cranes, Long-handled cement finishing floats, Metal building materials, Metal ladders, Raised dump truck beds, Scaffolds.
   If any of these pieces of metal equipment came into contact with power lines, anyone that touches them could get electrocuted. Metal is a conductor of electricity. If a person touches the energized metal object and the ground at the same time, they will be electrocuted.

5. Falls are the leading cause of fatalities in the Construction industry.

6. Name two reasons why someone might hurt themselves using a ladder.
   Any two of the following are acceptable:
   - Ladder is not safely positioned.
   - Ladder may move and slip from its supports while in use.
   - Loss of balance while getting on or off an unsteady ladder.
   - Cracked or broken parts.
   - Too much weight is applied.
7 True or False:
Workers have the right to file an anonymous complaint with OSHA if they believe they are working in an unsafe Construction environment. OSHA will investigate the job site and keep the worker's identity a secret.
TRUE

8 What are two ways to avoid injury when working around cranes and hoists?
Any two of the following:
- Avoid working underneath loads being moved.
- Barricade hazard areas and post warning signs.
- Inspect cranes and hoists to see that all components are in good condition.
- Do not exceed lifting capacity of cranes and hoists.

9 How can workers protect themselves from being struck by falling objects?
Any of the following:
- Wear hardhats.
- Stack materials to prevent sliding, falling, or collapse.
- Secure tools and materials to prevent them from falling on people below.
- Use scaffolds, debris nets, or screens to prevent falling objects.
- Also, any of the answers from #8

10 Does an employer have the right to fire a worker because the worker reported a suspected unsafe construction site? Why or why not?
No. Workers have the right to exercise their rights under the law without retaliation or punishment, including reporting an injury or raising health and safety concerns with their employer or OSHA. If a worker has been retaliated against, they should file a complaint with OSHA as soon as possible, but no later than 30 days.
Now that students have been exposed to many careers and are developing preferences, they will begin to wonder, how can I work in this field? CUNY offers many certificate and degree programs in Construction. Students do not need to choose one immediately, but should become comfortable learning how to research them.

**ACTIVITIES IN THIS SERIES**

4.1 • CUNY Basics: An Overview of the CUNY System

4.2 • Researching CUNY Degree and Certificate Programs in Construction*

4.3 • Understanding Degree Program Requirements*

4.4 • CUNY Certificates: Construction Management and Solar PV Installation Professional*

4.5 • How Do I Enroll in CUNY?*
CUNY Basics: An Overview of the CUNY System

Students read an overview of CUNY colleges and programs. They practice using a table that lists academic programs offered at CUNY, organized by campus. In subsequent activities in this series, students will learn different ways to explore degree and certificate programs in Construction.

PREP

- Read CUNY Basics handout
- Read Degree Programs Across CUNY Campuses handout

MATERIALS

- CUNY Basics handout
- List of CUNY Community Colleges by Borough handout
- Degree Programs Across CUNY Campuses handout

The CUNY college and degree program information included in this lesson can be found online at Discover CUNY: https://www.cuny.edu/admissions/undergraduate/downloads/discover-cuny.pdf

Information on CUNY certificate programs can be found online at individual campus websites, typically in their adult or continuing education departments.

EXPLAIN

1 The City University of New York has campuses in all five New York City boroughs. It is comprised of 24 colleges in total, offering Associate’s, Bachelor’s, Master’s, Doctoral and Professional degrees, in addition to Certificate programs.

2 Before we begin reading, what are some questions that you have about Degree and Certificate Programs? Students might ask questions such as:
   - What is the difference between degree and certificate programs?
   - Where are programs offered? How do I find out what is available?
Section 4.1

How do I pay for them?

How much do they cost?

Let students know these questions will be covered in the next series of lessons.

3 Distribute CUNY Basics handout. This handout provides basic information about CUNY. Ask students to annotate anything that seems important, interesting, or confusing. They can also circle unfamiliar words and write any questions they have in the margins.

4 Which do you think is better, a degree or certificate? Both are valid and useful forms of education. Mention that degree-seeking students have a more formal status than certificate-seeking students, giving them greater access to the school’s resources. For example, degree-seeking students can participate in extracurricular activities, such as sports. Students need to assess their own situations and career goals in order to decide which is right for them. They should consider:

• How much time they can devote to education, on a weekly basis and in total numbers of years.

• What kind of career they are interested in preparing for.

• How much money they can spend on education, including paying out of pocket, using payment plans, or financial aid if eligible. The college websites list tuition charges as well as information on applying for financial aid, scholarships and payment plans.

• If they are willing to take on the sometimes lengthy process of applying for scholarships, including writing personal essays.

• How much weight the credential (degree or certificate) carries in the labor market, in particular, if it is required or beneficial for the career they want to pursue.

• What factors would influence which campus you attended?

What courses were offered, convenience to home or work, what kind of program you’re looking for.

5 CUNY has dozens of colleges across five boroughs and hundreds of majors. You can earn a degree, a certificate or take classes in a wide range of topics. To help in our exploration of the CUNY system, we’re going to look at two resources.

Distribute the Degree Programs Across CUNY Campuses and List of CUNY Community Colleges by Borough handouts.
DISCUSS

What is the information in the left hand column?
- A list of the Associate’s and Bachelor’s degrees granted.

Where are the colleges listed?
- On the top row.

As you can see this table lists Associate’s and Bachelor’s degree programs offered throughout the CUNY system.

Some boxes have an “A.” What does an “A” indicate?
- An Associate’s degree.

Some boxes have a “B.” What does a “B” indicate?
- A Bachelor’s degree.

If you wanted to enroll in a Construction Management Technology program, how would you use the table to see if CUNY offers the program?
- Look on the left-hand side column for the Construction Management Technology program, and follow it across to see which campuses offer that program.

Which campuses offer this program?
- City Tech.

What kind of credential is it?
- An Associate’s degree.

In the next few lessons, we will explore CUNY degree and certificate programs in Construction in more detail.

NOTE: Keep in mind that there are not many Construction-related certificate programs because it is easier to enter this sector without certifications or a high level of formal education.
The City University of New York (CUNY) offers a range of educational and training programs, from short term job training programs to Associate's and Bachelor's degree programs through its community colleges and senior colleges. Community colleges offer Associate's degree programs. Senior colleges offer Bachelor's degrees, although a few colleges—Medgar Evers College, New York City College of Technology and the College of Staten Island—offer both Bachelor's and Associate's degree programs. Degree programs are offered through the college's academic departments. Both community and senior colleges offer certificate and certification job training programs. Certificate programs are generally offered through the Continuing Education departments. CUNY has campuses in all five New York City boroughs. It has 24 colleges in total, offering Associate's, Bachelor's, Master's, Doctoral and Professional degrees, in addition to Certificate programs.

Certification training typically takes less than a year. It is focused on training people to work at a specific job. Upon completion of the training course, graduates will take a certification exam and earn an industry-recognized credential. Certificate programs are offered at both community and senior colleges.

A student can earn an Associate's degree by taking approximately 60–65 credits or roughly 20 classes within a specific curriculum designed by the school. Associate's degree students generally have to declare a major when registering for classes. Associate's degrees are commonly awarded by community colleges, although some senior colleges also award Associate's degrees. Students can take courses in preparation for a specific career, or they can major in liberal arts where they study a variety of subjects. Students at one of CUNY's community colleges can transfer to a senior college and credits earned for an Associate's degree can be counted toward completion of a Bachelor's degree.

A student can earn a Bachelor's degree by completing approximately 120-semester credits or roughly 40 college courses within a specific curriculum designed by the school. Most Bachelor's degree programs require that you choose a major or a course of study, but you generally do not have to decide on a major until later in your college career. A Bachelor's degree includes both general education or liberal arts courses in areas such as English, psychology, history, and math, as well as credit hours in your major area of study. Bachelor's degree programs are offered at CUNY's senior colleges.

Because there are so many options within the CUNY system, there are many factors to consider in picking the option that works best for each individual. Some factors to consider are:

- **TIME/PROGRAM LENGTH:**
  Do you need to complete training and enter the workforce right away? Have you identified a job you're interested in and want to jump into training and working as soon as possible? Or do you want to and
can you spend a longer time in education or training that may result in higher pay? Are you unsure which career is right for you and want to take general courses first?

Certification programs typically take less than one year to complete. However, in general, you do not earn college credits for certification training. Associate’s degrees are sometimes referred to as a two-year degree. However, due to personal and financial considerations, students can often take 3–4 years to complete an Associate’s degree. They offer both general academic and vocational options. A Bachelor’s degree takes the longest of the three options. Bachelor’s degrees are sometimes referred to as four-year degrees. However, due to personal and financial considerations, students can often take longer to complete a Bachelor’s degree. They combine general education and vocational classes.

**ADMISSIONS REQUIREMENTS:**
A High School Diploma or Equivalent is required for most certification programs at CUNY. Students applying to Associate’s and Bachelor’s degree programs are required to have a High School Diploma or Equivalent and to take the CUNY Assessment Test (CAT). All applicants with a High School Diploma or Equivalent are eligible for admission to CUNY community college Associate’s degree programs, regardless of CAT score. However, students may have to take remedial courses based on the assessment test results. Acceptance into a senior college is dependent on CAT results. Students interested in attending a senior college sometimes begin their college career at a community college and then transfer to a senior college upon the completion of remedial and credit courses.

**POTENTIAL EARNINGS:**
Although there isn’t specific information on average earnings for workers with certification training, the average annual salary in 2014 for New York City workers with a High School Diploma and some college without a college degree was $43,000. The average annual salary in 2014 for New York City workers with an Associate’s degree was $45,000 and the average for workers with a Bachelor’s degree was $65,000.

**COST AND FINANCIAL AID:**
The tuition for degree programs is a flat rate for full-time students, those who take 12 or more credits per semester. Part-time students, those who take fewer than 12 credits per semester, are charged a rate per credit hour. Students who receive Financial Aid from the federal and/or state governments can use these grants toward tuition. Some full-time students may be eligible for an Excelsior Scholarship. Other sources of financial support for degree programs include loans and scholarships. CUNY also offers a payment plan allowing students to pay tuition in installments. The college’s Financial Aid cannot be used for non-degree programs. Financial support for Certificate programs include other government grants, loans and scholarships. Public Assistance grants can be used toward many Certificate programs. Some students who are not eligible for federal or state Financial Aid may be eligible for scholarships specifically intended for them, such as in the case of undocumented students.
## List of CUNY Community Colleges by Borough

### Community Colleges by Borough

**MANHATTAN**
- Borough of Manhattan Community College (BMCC)
- Guttman Community College (Guttman)

**BRONX**
- Bronx Community College (BCC)
- Hostos Community College (Hostos)

**BROOKLYN**
- Kingsborough Community College (KCC)

**QUEENS**
- LaGuardia Community College (LGCC)
- Queensborough Community College (QCC)

### Senior Colleges by Borough

**MANHATTAN**
- Baruch College (Baruch)
- The City College of New York (City)
- Hunter College (Hunter)
- John Jay College of Criminal Justice (John Jay)

**BRONX**
- Lehman College (Lehman)

**BROOKLYN**
- Brooklyn College (Brooklyn)
- Medgar Evers College (Medgar)
- New York City College of Technology (City Tech)

**STATEN ISLAND**
- College of Staten Island (CSI)

**QUEENS**
- Queens College (Queens)
- York College (York)
## Degree Programs Across CUNY Campuses

This is a sample page from the *Discover CUNY* brochure. It lists the Associate's and Bachelor's degree programs offered throughout CUNY.

### Academic Programs

**Accounting, Dental Laboratory Technology**

<table>
<thead>
<tr>
<th>Academic Programs</th>
<th>B</th>
<th>B</th>
<th>A</th>
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Researching CUNY Degree and Certificate Programs in Construction*

Students practice using a college website to locate degree and certificate programs in Construction, then choose one degree program to research in further detail.

PREP

1. Go to the New York City College of Technology/City Tech* website: www.citytech.cuny.edu. Under the Academics tab at the top of the page, click on Degrees and Areas of Study from the drop-down menu. Then Click on Engineering Technology and Design & Media. Read the descriptions of the majors that lead to Construction-related degrees. Many, though not all degrees in these fields lead to careers in Construction.

2. Go back to the main City Tech site. Under Academics, click on Continuing Education, then scroll down to the Continuing Studies Center and click on Programs and read about courses that pertain to Construction, such as Renewable Energy Training, Auto Cad, House and Home, Building Operations and Blueprint Reading, Architectural Design/REVIT, Security and Locksmithing, and Welding. City Tech is home to the Academy for Occupational Health and Construction Safety, which can be found on the Continuing Education main page as well.

3. Be prepared to discuss the terms: college major, college degree, certificates and credential.


5. Write the URL for City Tech on the board:

   http://www.citytech.cuny.edu

MATERIALS

- This session requires use of a computer lab.
- Construction Majors and Certificates at City Tech handout
- Exploring a College Degree in Construction handout

VOCABULARY

college major
college degree
certificates
credential
EXPLAIN

1. Colleges and universities generally offer a number of different programs that culminate in students earning certificates, Associate’s degrees and Bachelor’s degrees, among others. What are the big differences between these programs?
   - Amount of time in program, cost, level of credential, depth of study, courses offered.

2. What is the difference between a college major and a college degree?
   - A major is the subject, program or area of study. A degree is the credential you earn when you complete the program (Bachelor’s, Associate’s, Master’s, etc.).

3. In many, though not all fields, a degree is considered a higher level credential than a certificate, but some careers do not require more than a certificate, so both are important to consider. Most entry level jobs in Construction do not require a degree or certificate. However, some Construction workers pursue degrees or certificates in order to move up in their field or pursue management positions. In addition, most jobs related to the design of structures and buildings require a degree. Today you’re going to explore the Construction programs that New York City College of Technology, also known as City Tech*, offers.

4. Distribute Construction Majors and Certificates at City Tech handout. Ask students to navigate to the college’s website (written on the board), then click on Academics, then Degrees and Areas of Study, and identify majors in the Construction field and write them on the worksheet.
Ask students to click on Academics, then Continuing Education, then Continuing Studies Center.

Point out that City Tech also offers an Academy for Occupational Health & Construction Safety listed just below the Continuing Studies Center. Construction workers in NYC are required to complete at least 30 hours of OSHA-approved (Occupational Safety & Health Administration) training before working with certain equipment or on certain jobs. Supervisors typically need more than 60 hours of similar training. The Academy for Occupational Health & Construction Safety can help workers meet these requirements.

Identify courses that prepare students for certificates in Construction-related careers and write them on the worksheet. Remind students that this includes design, building operations, and utilities—any job that contributes to or supports a building or structure being designed, built, or maintained.

**Ask:** Do all Continuing Education courses listed lead to a certification? How do you know? Why would someone take a course that doesn’t offer certification?

- No, only some are certification programs/courses. Some say “certificate” in the title or description. People take continuing education courses that don’t necessarily offer a certificate in order to advance their skills, stay up to date on new technology in their field, get a promotion, etc. Many jobs do not require a certificate, but might look favorably on someone who has extra knowledge or skills.

Discuss the experience of using the website. Was it easy to navigate? Difficult? What helped you find what you were looking for?

When choosing a program, it’s important to find out in-depth information about exactly what you will be studying. We’re going to explore one degree program more in-depth: The Associate’s of Civil Engineering Technology (A.A.S.) under Engineering and Technology. Ask students to navigate to the description of this degree.

Distribute Exploring a College Degree in Construction handout. Ask students to complete the handout based on the information in the description of the A.A.S. in Civil Engineering Technology degree program.
Construction Majors and Certificates at City Tech

Use the City Tech website to find majors and certificates in Construction offered at the college. For college majors that lead to degrees, look under the Academics section of the website. For certificate programs, look in the Continuing Education Department.

College Website: www.citytech.cuny.edu

MAJORS LEADING TO DEGREES IN CONSTRUCTION

1. 
2. 
3. 
4. 

Describe where on the college website you found this information:

CERTIFICATES IN CONSTRUCTION

1. 
2. 
3. 
4. 

Describe where on the college website you found this information:
Exploring a Degree in Civil Engineering Technology

Use the City Tech website (www.citytech.cuny.edu) to read about the Civil Engineering Technology major, then paraphrase the information you find to complete the questions below. Make sure your answers are in your own words.

1. What is the name of the major?

2. What type of degree is it (Associate's of Science, for example)?

3. Which careers does this degree prepare students for?

4. How many credits can you earn in this program?

5. Which academic department is this major a part of?

6. Students in this program complete the training necessary for which certifications?

7. How much does the program cost in addition to tuition? Why are there costs in addition to the cost of tuition?

8. Write about one part of the program that sounds interesting to you and explain why. Write about one part that sounds like it might be challenging for you and explain why.
Understanding Degree Program Requirements*

Students read a description of a sample Construction major and identify the roles of various general education requirements within the overall course of study. Requirements of majors at other colleges may be organized differently from those at CUNY.

PREP

- Researching college degrees involves learning about which courses are required of which majors. Every major has course requirements. Some requirements specify a particular course; other requirements allow students to choose from several related courses. Most students are required to take two semesters of English composition. Other requirements may include math, science, humanities, social sciences, foreign languages and/or arts courses. Sometimes students have difficulty understanding the relevance of general education requirements to their major.

- Requirements for majors are divided into two main areas—Curriculum Requirements, which are the courses that relate directly to the major; and General Education requirements, which are divided into two parts: Required Core and Flexible Core requirements. Course requirements of the major are usually outlined in the description of the major in the Academics section of the college website. See the description of the Civil Engineering Technology major at City Tech on the next page as an example.

- Read the Civil Engineering Technology description in the City Tech website, and practice navigating there from the Academics area of the City Tech website: www.citytech.cuny.edu


MATERIALS

- This session requires use of a computer lab.
- Understanding Degree Program Requirements worksheet

*RAENs will provide regional adaptations.
EXPLAIN

1. Today we’re going to practice navigating a college website to learn how to identify the courses required for a given major. We’re going to use Civil Engineering Technology as a sample major. In the future, you will be able to research a major or certificate of your choice, using your skill in navigating college websites.

   What do you think the Civil Engineering Technology major is all about?
   - The major prepares students to work with Civil Engineers on a variety of projects. Civil engineers conceive, design, build, supervise, operate, construct and maintain infrastructure projects and systems in the public and private sector, including roads, buildings, bridges, tunnels, canals, dams, airports, sewerage systems, pipelines, and railways.

2. What courses do you think are required for this major?

3. Write www.citytech.cuny.edu on the board and have students navigate there, circulating to make sure they are all on the correct page. Then ask them to click on Academics, then Degrees and Areas of Study, then find and click on the A.A.S. in Civil Engineering Technology in the Engineering Technology section.
4. Explain that the major requirements come in two parts: **curriculum requirements** and **general education requirements**. General education requirements are further divided into **core** and **flexible core** requirements. Curriculum requirements are the courses that directly relate to the major or career. Core and flexible core requirements are courses that students in this and other majors take across a variety of departments, many of which prepare students for further study in their major area.

5. Ask students to read the description of the major and identify some of the tasks they think might be required of people who work in the field of Civil Engineering. Write their responses on the board. They might say things like:

   - Create and read blueprints, survey land, create models of projects, assist engineers with other tasks.

6. Divide students into groups of three. Ask groups to click on the **Degree Requirements** tab for the Civil Engineering Technology major. Point out that the catalogue name (ENG 101, ECON 101, etc.) for each course is hyperlinked and, when clicked, opens a box with a description of the course. Click on an example course to demonstrate how to find the description for each course. Students will need to read the course descriptions to answer the questions on the worksheet.

7. Ask students to notice that at the bottom of each course description, there is a list of the prerequisites required to take the course. Discuss what a prerequisite is.

   - *A prerequisite is a requirement (typically a different course or an exam) you must successfully complete before taking the course in question. Some courses do not have prerequisites. It is very important to always check whether or not a course has any prerequisites before registering, so that you can be sure you will be allowed in the class.*

8. Distribute the **Understanding Degree Program Requirements** worksheet and ask students to complete it using the course descriptions.
Lesson Guide

Section 4.3

Civil Engineering Technology - AAS

Overview

The program prepares students for positions as engineering technicians in a broad range of public works projects including structures, transportation facilities, water supply, waste water treatment, geotechnical as well as construction inspection, materials testing and surveying. Included in the curriculum are courses in the theory of structures, fluids, surveying, soils and materials testing. Students enrolled in this program complete training for American Concrete Institute certification as Field Inspector (Level 1) of Fresh Concrete and the NSPSO Survey Technician Certification. All technical courses incorporate computer applications. Courses in computer-aided drawing and Building Information Modeling (BIM) are integrated into the curriculum. Graduates of this program find employment with consulting engineering firms, testing laboratories, industrial organizations and governmental agencies involved with providing public works services and safeguarding the environment. Occupational titles include junior engineer, civil engineering technician, assistant project manager, surveyor, construction inspector and CAD technician.

Government related agencies and organizations that regularly employ graduates of this program include the Dormitory Authority of the State of New York, the Port Authority of New York and New Jersey and the New York City Department of Transportation. Private sector employers include numerous general contractors, engineering consulting firms and construction management firms such as Boyes Lend Lease, Arnell Construction Co., Slattery Construction Co. and Turner Construction. Future Tech Consultants, Forest City Ratner Corp., AECOM, Parsons Brinkerhoff, HNTB Engineers, Leslie

Degree Requirements

Sample Course of Study

GENERAL EDUCATION REQUIRED AND FLEXIBLE COMMON CORE 28 TO 30 CREDITS

Students who have already completed MAT 1575 may select another mathematics or flexible core course instead. At least 1 course designated W1 is required from the College Option or Gen Ed Flexible Common Core.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 1101</td>
<td>English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>ENG 1121</td>
<td>English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>MAT 1475</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 1433</td>
<td>General Physics I: Algebra Based OR</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 1441</td>
<td>General Physics I</td>
<td>5</td>
</tr>
<tr>
<td>ECON 1101</td>
<td>Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 1434</td>
<td>General Physics II: Algebra Based OR</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 1442</td>
<td>General Physics II: Calculus Based</td>
<td>5</td>
</tr>
<tr>
<td>MAT 1575</td>
<td>Calculus II</td>
<td>4</td>
</tr>
</tbody>
</table>
Understanding Degree Program Requirements*

Read the Civil Engineering Technology description on the City Tech website, www.citytech.cuny.edu.* For each course listed, click on the link to read more, then reach your own conclusions about how each course is relevant to Civil Engineering Technology students to answer the questions below.

1. **English Composition**: How will the required English courses help Civil Engineering Technology professionals?

2. **Mathematical and Quantitative Reasoning**: Why do Civil Engineering Technology professionals need to use math?

3. **General Physics**: Why do you think this course is required?
4. What do students do in CMCE 1110 and why is it required?

5. What do students do in CMCE 2457 and why is it required?

6. Having learned about the Civil Engineering Technology major, is this a career you would consider pursuing? Why or why not?
CUNY Certificates: Construction Management and Solar PV Installation Professional*

Having researched degree programs, students will now learn about certificate programs by reading descriptions of two certificates in Construction offered at CUNY campuses and develop questions based on what they read.

MATERIALS

- Construction Management Certificate handout
- Certified Solar PV Installation Professional handout

NOTE: There may be differences in requirements and program details in similar certificate programs at different colleges, so researching individual programs is always recommended.

EXPLAIN

1. Certificate programs can be credit-bearing or not, require one semester or many semesters of study, may be open to HS/HSE diploma-holders only or may be open to those have not yet earned diplomas. There is a lot of variation in certificate programs. In CUNY, they are typically located in the Continuing Education departments.* As the needs of industries change, colleges are adding and updating certificate programs all the time. The most up-to-date information can be found through the Continuing Education offices of each campus.

2. We are going to look at two certificate programs that are offered at several CUNY colleges. Descriptions of certificate programs are usually less detailed than descriptions of degree programs, so after reading the certificate program descriptions, you will develop questions you have about the program.

3. We will read first about the Construction Management certificate program at City Tech. Construction Managers plan, coordinate, budget, and supervise construction projects from start to finish. They work with and must effectively communicate with architects, contractors, tradespeople, laborers, licensing agencies, and more. The median annual wage for Construction Managers was $91,370 in May 2017. People interested in working in this field are typically required to have a Bachelor’s degree in Construction Management.

*RAENs will provide regional adaptations.
plus work experience in Construction, but sometimes, a person already working in Construction might decide they want to work towards becoming a Construction Manager someday. That’s where the City Tech Construction Management certificate can be useful. Several other CUNY campuses also offer certificate or continuing education courses in Construction Management.

Another CUNY certificate program we’ll look at is **Solar Photovoltaic (PV) Installation Professional**. Solar PV Installation Professionals assemble, install, and maintain solar panel systems on rooftops or other structures. Increased attention to environmental issues has caused the popularity of solar energy to increase dramatically. Employment of Solar PV installers is projected to grow 105 percent from 2016 to 2026. Though some PV installers learn through on-the-job training or apprenticeships, PV installers who complete a course or certificate in photovoltaic systems at a community college or technical school will have the best job opportunities.

Distribute the *Construction Management Certificate* handout.* Ask students to read it and consider any questions they would have about entering the program.

Distribute the *Certified Solar PV Installation Professional* handout.* Ask students to read it and consider questions they would have about entering this program.

Ask students to choose one of the two certificate programs, and write five questions they might have about entering their chosen program.

When students are finished, they can share their questions with the class. If it does not naturally come up in conversation, be sure to point out to students that the Solar PV Installation Professional program satisfies the credit hour requirement in order to be eligible for NACEP certification, but that students must then complete the NABCEP exam in order to receive the certificate. Tell students this is common among certificate programs in many fields. The programs prepare students for the exam, but the certification is then granted through a regional or national certification organization, separate from the college or university.

Ask: How do you think you might be able to find the answers to some of the questions you have about certificate programs if they are not on the college’s website?
Construction Management - CERTIFICATE

Overview

The Department of Construction Management and Civil Engineering Technology offers a 20-credit certificate in construction management. The certificate has been designed to enhance the opportunities for those already employed in the construction industry without any formal academic or technical background in construction management, as well as to appeal to those seeking entry-level opportunities in the field. It is ideal for construction management personnel and their employees, for small contractors and for individuals wishing to pursue their own small contracting businesses. It serves those individuals seeking just a few courses, rather than a full degree program, on such topics as estimating, plan reading, interpreting specifications, etc.

All courses are the same credit-bearing courses as those offered in the AAS degree programs within the department, and may be used ultimately toward the AAS degree in construction management technology as well as the bachelor's degree in facilities management (construction management concentration). Course prerequisites may require an evaluation of a candidate's experience by a representative of the department.
## Construction Management - CERTIFICATE

### Overview

#### REQUIRED COURSES IN THE MAJOR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMCE 1110</td>
<td>Construction Drawings I</td>
<td>2</td>
</tr>
<tr>
<td>CMCE 1114</td>
<td>Materials and Methods of Construction I</td>
<td>3</td>
</tr>
<tr>
<td>CMCE 1211</td>
<td>Construction Drawings II- Computer Aided Drawing (CAD)</td>
<td>2</td>
</tr>
<tr>
<td>CMCE 1221</td>
<td>Construction Management I</td>
<td>3</td>
</tr>
<tr>
<td>CMCE 1224</td>
<td>Methods and Materials of Construction II</td>
<td>2</td>
</tr>
<tr>
<td>CMCE 2321</td>
<td>Construction Management II</td>
<td>3</td>
</tr>
<tr>
<td>CMCE 2412</td>
<td>Construction Estimating</td>
<td>2</td>
</tr>
<tr>
<td>CMCE 2421</td>
<td>Construction Management III</td>
<td>3</td>
</tr>
</tbody>
</table>

**Certificate in Construction Management:** 20 CREDITS
Renewable Energy - NABCEP Solar PV, Green Roof, Wind

City Tech Continuing Studies Center is a NABCEP Provider offering hands-on training that provides all 58 of the educational credit hours needed to become a certified Solar PV Installation Professional. Begin with Basic Math and Electric for Solar PV to get essential skills and continue your training with pro instructors who will help you launch your career.

Our Roadmap to Certification:

- Basic Electrical for PV: a Prerequisite
- PV Associate Class (18 credit hours)
- This qualifies you to sit for the PV Associate exam at City Tech or online at a testing Center
- Advanced PV Pro Exam Prep (40 credit hours)

Total NABCEP Educational Credits: 58

Visit NABCEP.Org

Classes are held at City Tech Continuing Studies Center Directions
25 Chapin Street, Howard Building 4th floor, Brooklyn NY 11201 718 682 1170
Hands-on labs are conducted on 2 Saturdays at our on-site and Brooklyn Navy Yard Training Labs
Information: csalmon@citytech.cuny.edu

ELECTRICAL CALCULATIONS FOR SOLAR PV
CODE: PV0000
$520.00

ELECTRICAL CALCULATIONS FOR SOLAR PV PV0000-FA18
Mon - Thurs, 6:00 - 9:00, 9/17/18 - 9/27/18 Labs: Sat, 9:30 am - 4:30 pm, 9/22/18 & - more
Course section: PV0000-FA18 (September 17 - September 20)

NABCEP PHOTVOLTAIC ASSOCIATE™ (ENTRY LEVEL PV DESIGN & INSTALLATION)
CODE: PV1202
$995.00
How Do I Enroll in CUNY?*

CERTIFICATES

CUNY certificate programs are administered through the colleges’ Continuing Education departments. Students should contact the college’s Continuing Education office to determine if there are any prerequisites, as well as the cost, schedule, location, deadlines and other pertinent information. Many programs require a high school diploma or equivalency as a prerequisite, but some, such as home health aide, do not.

In addition to the programs that CUNY offers, there are a range of low-cost or free short-term certificate programs in New York City offered at community-based organizations.

DEGREES

Once students have received a high school diploma or equivalent, they may apply to a CUNY college. They should research which college they want to attend, in order to find the best fit for their needs and interests. Once they are accepted, they will take placement exams in Reading, Writing and Math, which will determine whether they are placed into credit or developmental (remedial) courses. Students who need remediation should consider enrolling in CUNY Start or CLIP to improve basic skills at a low cost.

STEP 1: Research programs and colleges

There are many factors to consider when researching a college program, such as:

- Does it offer the major I am interested in?
- Where is the college located and how will I get there?
- Can I afford the tuition, either through payment, financial aid or scholarships?
- Are classes offered at times that work for me?
- How much time will I need to devote to attending classes, commuting and class preparation, including reading, completing assignments, group projects, and preparing for exams?

STEP 2: (May be concurrent to Step 1) Earn high school or equivalent diploma.

*RAENs will provide regional adaptations.
STEP 3: Apply to CUNY through the college's Admission Office, known as Direct Admit, or online through the college website. CUNY does not ask students about their legal residency status.

STEP 4: Apply for Financial Aid—Pell, the federal grant and TAP, the New York State grant, through the website, www.fafsa.gov

STEP 5: Once accepted, take CUNY placement exams in Reading, Writing and Math.

STEP 6: If remediation is required, enroll in CLIP or CUNY Start.

The CUNY Language Immersion Program is for students who are non-native English speakers and need to improve their reading and writing in English before enrolling in credit-bearing college courses.

CUNY Start is for fluent English speakers who need to improve reading, writing or math skills before enrolling in credit-bearing courses.

STEP 7: Attend New Student Orientations.
Special Programs

Beginning college can be overwhelming to many new students. The following CUNY programs provide students with smaller settings and more individual attention, academic support, such as instructional immersion and tutoring, financial support, such as contributing to tuition, travel expenses and book costs, and personal and academic advisement.

LOW COST PROGRAMS FOR STUDENTS WITH REMEDIAL NEEDS

**CLIP (CUNY Language Immersion Program)**—An intensive English as a Second Language (ESL) program for CUNY students who need to improve their academic English language skills. Classes meet five hours a day, five days a week, in day or evening sessions in all five boroughs.

**CUNY Start**—Provides intensive preparation in academic reading, writing, math, and advisement. An academic program with social supports, CUNY Start helps students prepare for college level courses and re-take placement exams in Reading, Writing and Math.

FINANCIAL AND ACADEMIC SUPPORTS FOR DEGREE STUDENTS

**ASAP (Accelerated Studies in Associate's Programs)**—Helps associate degree students earn their degrees as quickly as possible, ideally within three years. ASAP includes a consolidated block schedule, cohorts by major, small class size, and requires full-time study. It also includes tuition waivers for financial aid-eligible students, textbook assistance, and monthly MetroCards.

**College Discovery**—Available to financially eligible students, College Discovery offers a pre-college summer program, tutoring, counseling and advisement, tuition assistance, book and materials stipends.

The above programs are university-wide programs. Individual CUNY colleges offer additional programs. Representatives are often available to present on panels or to classes.
Advanced Careers in Construction: Architecture and Engineering

While it is possible to begin working in the Construction sector with no more than a high school or equivalency diploma, it is also possible to move into high level positions which require Bachelor’s degrees or higher. For people who are interested in pursuing a 4-year degree or more, there are opportunities in Construction-related Architecture and Engineering careers. Students read entries in a career database, practice paraphrasing, make inferences and present on an assigned career.

PREP

- Explore the Career Cruising website, www.careercruising.com. Career Cruising is a subscription-based service that many programs subscribe to. Find out if yours does, and use your program's username and password to log in. Using the search bar at the top of the page, read the entries for Civil Engineer, Mechanical Engineer, Architect, Environmental Engineer, Landscape Architect, and Planner (also known as City Planner, Urban Planner), and complete the Teacher’s Version: Careers in Architecture and Engineering worksheet.

If your program does not have a Career Cruising subscription, use the Bureau of Labor Statistics’ Occupational Outlook Handbook instead found at www.bls.gov. The careers above are described on both sites.

- A computer lab is necessary for this class. If not available, print the career descriptions from Career Cruising or BLS for use with students.

- Write www.careercruising.com or www.bls.gov on the board, depending on which website you will use.


MATERIALS

- Careers in Architecture and Engineering handout
- Teacher’s Version: Careers in Architecture and Engineering handout
EXPLAIN

1 Construction is a sector that does not require a degree in order to get a stable, entry-level job with benefits and opportunities for advancement. However, the more education you have, the higher you can go in this sector, and the more money you can earn. After working in entry-level positions, some Construction workers decide to pursue college degrees in order to advance in the field. Some people who know they want a career in Architecture or Engineering pursue four-year degrees right away. Today we’re going to learn about mid-level to high-level careers in Architecture and Engineering. These careers require college degrees and some require a license.

We are going to use a database called Career Cruising (or the Occupational Outlook Handbook) to research careers in Architecture and Engineering and paraphrase the information we read. Then you will present the career to the class.

2 Distribute the Careers in Architecture and Engineering handout. Ask students to read the title and ask:

What is an engineer?
– Someone involved in the planning, production or construction of things.

When you think of an engineer, what comes to mind? What do they do at work? What do they help produce or build? What tools or instruments do they use?
– They use math and science to plan the building of bridges, roads, office buildings, chemicals and electrical systems.

What is an architect?
– Someone who designs buildings, bridges, tunnels, parks, etc.

When you think of an architect what comes to mind? What do they do at work? What do they help produce or build? What tools or instruments do they use?
– They use art and math to design structures. They use blueprints, design software, pencil and paper to draw, art supplies such as colored pencils, glue and cardboard to build 3-dimensional models.

3 Divide the class into five groups. Assign each group one of the Architecture or Engineering careers. In their group, students should take 2 minutes to discuss what they think their assigned professional does at work. Encourage them to guess and freely discuss their ideas without censoring themselves. They will learn more about this career momentarily.
Navigate to Career Cruising and sign in (or BLS). There are many ways to use the website. It is designed for people looking for detailed information about a field they want to pursue, as well as for people who are not sure yet what field they want to pursue.

Enter “civil engineer” into the search bar at the top of the page. This is not one of the careers you will research together with your group. Instead, the whole class will look at this career description to learn the features of the webpage.

What do you see on this page?

- At a Glance, with photos and general descriptions of the career.

What kind of information is presented here?

- It’s an overview of the career, including photos of engineers at work, a salary range, required levels of education and videos.

What do you see in the left-hand bar?

- Job Description, Working Conditions, Earnings, Education, etc.

What do you think you will find there?

- More detailed information about each of those topics, concerning the Civil Engineering career.

Read through the Careers in Architecture and Engineering worksheet, but don’t write anything yet. Then consider: If you were going to complete the handout for Civil Engineering, where on the website would you find the information you need?

- Job Description, Working Conditions, Earnings, Education.

Read these descriptions with a partner and develop a 5-sentence description of the Civil Engineering career that you will share with the class. Make sure the description is in your own words.

Have a few pairs share their descriptions.

Now you are going to read about your assigned career, and complete the worksheet by paraphrasing the information you find. Note to teacher: Review paraphrasing as needed.

Now you will prepare to present your research to the class. Write the following questions on the board and discuss them as a class. Students should work in their groups to make 5-minute presentations on the Architecture or Engineering career they researched.
Lesson Guide

Section 5

• What makes an effective presentation?
  > It’s well organized, with clear logic from one point to the next, clear, loud speaking, personal connection to audience.

• In what order will you present the information?

• How will you introduce the topic?

• What questions do you anticipate? Can you answer those questions, or do you need to research the answers?

• Is all of your information paraphrased?

ALSO INCLUDE:

• What personal characteristics are a good match for someone who wants to enter this field?

9 Each group presents their research. Students in other groups should jot down questions they have about the career as they are listening. At the end of each presentation, the class should be given an opportunity to ask their questions to the presenters.

10 OPTIONAL: Students can critique one another’s presentations, offering feedback on what made certain parts especially effective, and suggestions for improvement. They learn about professional or academic critiques, their goals, how to offer critique, and how to receive critique—an important workplace and college skill.
ASK

What is a critique?

- Offering feedback on a project. A critique can include praise as well as suggestions, for example, it can identify which parts were particularly effective and which parts need improvement.

Who does them?

- Many college students and workers do them. Many architecture and design students are required to do them, but other students do them too, when they ask their classmates to read their work and offer suggestions.

Why is critiquing done?

- To get better! When you’ve made something the best you think it can be, it’s helpful to hear how others have experienced it, and what ideas they have for improving it. Even the most famous and accomplished writers have editors. These are people who offer feedback in order to help the writer improve.

Write the following sentence stems for critique/feedback on board.

**OFFERING FEEDBACK:**

“I thought it was effective when you said...”

“You really caught/held my attention when you...”

“I was confused when you said...”

“I wanted to hear more about...”

“One suggestion I have is...”

Then invite students to critique each presentation. Ask first for the presenters to critique themselves. They should say one part of the presentation they thought was particularly effective, and one aspect of the presentation that can be improved, and how. Next, two students in the audience can critique the presentation using the same format—one piece of positive feedback and one suggestion for improvement.
Teacher’s Version: **Careers in Architecture and Engineering**

**FOR THE TEACHER:** Complete this key based on Career Cruising profiles in order to support students in their research.

<table>
<thead>
<tr>
<th>POSITION</th>
<th>What they do at work (Duties)</th>
<th>Why a business needs them (Context)</th>
<th>How to become one (Education)</th>
<th>How much they can earn (Salary)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Engineer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Architect</td>
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<td></td>
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<tr>
<td>Environmental Engineer</td>
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<td></td>
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<tr>
<td>Landscape Architect</td>
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<tr>
<td>Planner</td>
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</tbody>
</table>
**Careers in Architecture and Engineering**

In your group, complete the chart below, discussing and paraphrasing the information you read about on the website.

Your assigned career: ________________________________

<table>
<thead>
<tr>
<th>What they do at work (Duties)</th>
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<tbody>
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<td>How to become one (Education)</td>
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</tr>
<tr>
<td>How much they can earn (Salary)</td>
<td></td>
</tr>
<tr>
<td>Something that seems interesting about this career</td>
<td></td>
</tr>
<tr>
<td>Something that seems challenging about this career</td>
<td></td>
</tr>
<tr>
<td>Two questions I have about this career</td>
<td></td>
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</tbody>
</table>