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 learned about a wide range of careers in the Food Production sector and which subsectors have the most plentiful jobs in their region. They learned about the industrialization of Food Production throughout history, how our food gets from the farm to our table, and examples of careers available at each stage of the food system. Students also learned about cutting edge technology that is changing the way our food is grown and manufactured.

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 Food Production sector.

In Unit Three, students’ research became personalized. They heard from Food Production workers themselves, through firsthand accounts and interviews from workers in text and video, and discussed what they learned. They developed informational interview questions and conducted further research on Food Production careers of interest.

In Unit Four, students consider what it takes to prepare for a career in Food Production. They learn about common career pathways in the industry and consider how career movement happens in Food Production careers. What kinds of training and education opportunities are available for someone interested in this field? Students get a taste of training and learn about the importance of sanitation through reading a food safety training manual from a Food Production facility.
Unit 4 • Summary

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 Food Production Career Movement Series**
   Students learn about how career movement happens in Food Production using a personal narrative and consider their own career trajectories and values.

   2.1 • Luis’s Career Movement Letter
   Students read a story about Food Production and career movement from an experienced supervisor in Food Manufacturing who started out as a line cook in the restaurant industry. They learn about the different steps he took and choices he made along the way to discovering his ideal career.

   2.2 • Luis’s Career Map
   Drawing on their experiences with map-reading, students consider the trajectory Luis took and portray it as a map. They focus on the steps he took to move from one job to another.

   2.3 • 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 Food Production**
   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 in Food Production.

   3.1 • Job-seeker Terminology
   Students learn vocabulary relevant to a job search in any sector, by matching job search terms to their definitions.

   3.2 • 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 training program.

   3.3 • Developing Questions: Researching Job Training Programs in Food Production
   Students develop questions to ask before applying to job training programs, and use them to research respected training programs for beginning Farmers, Welders, Bakers, HVAC/R Technicians, and more.
3.4 • On the Job Training: Reading a Food Safety Manual for Employees
Students read a sample Food Manufacturing 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: CUNY PROGRAMS IN FOOD PRODUCTION
Students learn about CUNY and SUNY certificate and degree programs related to Food Production and practice using the resources to research them, including the CUNY college websites.

4.1 • Using CUNY Websites to Find Degree and Certificate Programs in Food Production*
Students learn how to navigate a college website to locate information about degree and certificate programs by searching one CUNY campus website for their Human Services programs.

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

4.3 • Sample SUNY Certificate Programs: Agriculture and Food Studies at Monroe Community College*
Students learn about a Food Production certificate offered at a SUNY campus by navigating the website, reading a program description, and developing questions based on what they read.

4.4 • How Do I Enroll in CUNY?*
Students learn the steps required to apply to CUNY certificate and degree programs.

5. ADVANCED STEM CAREERS IN FOOD PRODUCTION
In groups, students research one of five STEM careers in Food Production that require a Bachelor’s degree or higher. 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 education attainment, then perform computations 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, 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 graph.
Average Lifetime Earnings and Educational Attainment

MEDIAN WAGE BY EDUCATIONAL ATTAINMENT IN NEW YORK CITY, 2014

* 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 salary for a person with a HS or HSE diploma.

What trend or pattern do you notice?

› 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

4 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 diploma earn than someone who never earns a 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 Food Production Career Movement Series

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

**ACTIVITIES IN THIS SERIES**

2.1 • Luis’s Career Movement Letter

2.2 • Luis’s Career Map

2.3 • Multiple Paths: How Personal Factors Impact Career Movement
**Luis’s Career Movement Letter**

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

**PREP**

- Read *Luis’s Career Movement Story*

**MATERIALS**

- *Luis’s Career Movement Story*

**EXPLAIN**

1. *Luis’s Career Movement Story* is the story of a worker who leveraged his life and work experience with food and technology into a rewarding career in Food Production.

   **Ask:** Even if you aren’t interested in a career in Food Production, how could an article about a worker moving between various jobs be useful to you?

   - I might want to make a career change now or in the future. It could be useful to learn about the steps someone took to move from job to job.

2. Distribute *Luis’s Career Movement Story* and ask students to read and annotate it. While students are reading, write the following questions on the board. When students are finished, ask them to discuss the questions in pairs:

   - How did Luis get his first job?
   - Why didn’t Luis want to stay at his job as a cook?
   - What kind of job did he get later, and what steps did he take to get it?
   - What does Luis mean by “mechanical aptitude”?
   - What are some other qualities or skills that Luis exhibited that helped him along his career movement path?
   - Why didn’t Luis like his job as a machine operator?
   - How did Luis move from being a machine operator to his current job?
   - Luis’s first and second jobs were not the right job for him. What factors, other than salary, would make a job right for you?
Luis’s Career Movement Story

I never planned on a career in Food Manufacturing. If you had asked me back in high school what someone in Food Manufacturing does, I probably would have just given you a blank stare, and gone back to whatever video or computer game I was obsessed with. I've always loved computers, figuring out how they work, taking the game consoles apart and putting them back together. I joined the AV club at school and was part of a team of students who went into classrooms to fix projectors and computers when they weren't working properly. For a while, I thought I might study computer science when I got older. But during my senior year of high school, my mom lost her job and the family fell on hard times, so I had to start working to help out.

I was hired to work after school and on the weekends in the kitchen at a busy Mexican restaurant in our neighborhood. I didn't have any experience, but during the interview I told the kitchen manager all about how my mom was born in Mexico and one of her favorite things was to cook family recipes for us that had been passed down through generations of cooks in her family. She wanted my three sisters and I to keep the traditions alive, but she also wanted us to know how to cook for ourselves, so that we never had to rely on anyone else for that. So she taught us all her secret recipes, but she also taught us how to be safe in the kitchen—like how to handle raw meat and how to chop vegetables like the professional chefs you see on TV.

Even though I didn't have any experience working in food service, the kitchen manager at the restaurant decided to give me a chance based on my experience at home and started me out in food prep. Working food prep, I got to continue honing my knife skills, but I also had to learn more about proper food safety and sanitation techniques. Even if food tastes great, if someone gets sick, it’s a real problem, not only for the customer but for the restaurant who could get sued or put out of business. The kitchen was very strict about things like wearing...
gloves and hair nets when handling food, keeping good personal hygiene, and making sure food is the right temperature when it has to be stored, among other standard food safety protocol. While the pay wasn't great and the restaurant didn't offer any benefits, I learned a lot and was eventually moved up to line cook after four months because I was always on time, took the job seriously, and showed I had the ability to improve.

I continued to work at the restaurant for a few years after I graduated from high school, and eventually I was promoted to assistant kitchen manager where I learned valuable leadership, organizational, and communication skills. As assistant manager, one of my responsibilities was to order our produce, tortillas, meat, and condiments from our food suppliers each week. When the orders would come in on Monday mornings, it was also my job to make sure all the orders were correct. It would always be the same delivery guys working their Monday shift and after awhile I got to know some of them. One in particular, Henry, who worked for the company we ordered our canned and stewed tomatoes from, was really friendly and told me about his career with the company. He said it was a family-owned company and they treated him really well. He had actually started out as a factory worker on the line, but wanted better pay and more freedom, so he got his commercial truck driver's license. He really liked being out on the road, getting to know the different customers, getting to be the face of the company to all the restaurants and grocery stores that ordered from them. He had a great salary and full benefits, which was important because he had kids.

Talking with Henry got me thinking about what I wanted for my future. While I liked working at the restaurant, I didn't want to work there for the rest of my life. I wanted a career somewhere I could have a salary and benefits, like health insurance and paid vacation. I remembered my career counselor in high school always talking about the value of networking and talking to the people you know about what they do and that a lot of people get their jobs that way. I decided to ask Henry if he wanted to grab a beer after work one day so I could talk to him more about his job and see if his company was hiring.

Henry told me that he hadn't graduated from high school, but got his GED and then started with the company right away. He said he'd been with the company for over 15 years, and that a lot had changed. He said all the jobs on the line were done by machines and robots now, so there weren't as many of those jobs as there used to be when he started. But he said that anyone with mechanical
or electrical experience could make good money because they needed people who could maintain the machines and fix them when they broke down. I wasn’t sure I wanted to go back to school, but I told Henry how I’d always been really good at taking apart computers and fixing them. He said he thought that might be good enough to get my foot in the door and encouraged me to apply. He said I had what his bosses call, “mechanical aptitude.” Plus, he said he knew I was hard-working and well-respected by my boss at the restaurant, so he would put in a good word for me if I wanted. He said I’d probably have to start out working nights and weekends, but that in a year or two I could work my way up and eventually work first shift or get a promotion.

Henry made good on his promise and put in a good word for me. The company was really impressed that I already knew so much about food safety from my job at the restaurant. They said that was really the most important thing to know in the factory. Just like in the kitchen, if food gets contaminated and people get sick, the company is in big trouble. They also liked that I had an interest in technology and mechanical stuff, but that in order to get one of those jobs, I’d have to go through some training. They said I could start as a machine operator, but with the potential for advancement. The starting pay was the same that I was making at the restaurant, but because they also offered full medical insurance benefits with paid vacation time and a retirement plan, it was really like I was making significantly more because I didn’t have to worry about paying for that stuff on my own anymore. I excitedly accepted the job right away and so began my career in Food Manufacturing.

Henry was right—I did have to start out on second shift and work some weekends, but it was only for the first year. I worked hard, learned a lot about the machines I worked with, and about how the factory runs. I got to know some of the people who worked on the mechanical and technical side of things, repairing and maintaining the machinery, and decided I wanted to eventually move into that position. Over that first year, I was glad I had the job but felt bored with the level of skill it required. I wanted more of a challenge. When I asked my boss what I would need to do, he said that I needed some mechanical training. They would train me on the specific machines in our factory if I was
promoted to that position, but he said I needed to learn the basics first by taking a mechanical maintenance course at a trade school or community college.

I'm not going to lie, it was really hard working full time and going to night classes, but it was worth it. I took a six-month program and finished with a certificate in Mechanical Maintenance. The classes were pretty hands on and I learned a lot. I loved getting my hands dirty, taking apart and fixing things—just like when I was in high school fixing computers and projectors in the AV club. About five months after I finished the program, a mechanic position opened up at the factory and I was promoted!

I really liked working as a maintenance mechanic. I was able to move around more—going wherever my skills were needed in the factory. I stayed in that position for almost five years. By that time, my girlfriend and I had welcomed our first kid. We were very happy, but of course, kids are expensive! So when a first line supervisor position opened up at the factory and they offered it to me, I just couldn’t turn it down. They knew I already had assistant manager experience from my first job at the restaurant, but I had also proven to my bosses that I was committed to the company and our team. As a first line supervisor, I have a lot more responsibility, but I love it. I have a great team of workers that I am responsible for, and I feel a real sense of accomplishment at the end of the day. I never imagined I'd end up working in Food Manufacturing, but I feel proud of the work we do and I have what I need to support my family.
Luis’s Career Map

Drawing on their experiences with map-reading, students consider the trajectory Luis took and portray it as a map. They focus on the steps he took on the way to become a First Line Supervisor in Food Manufacturing.

PREP

- Be prepared to define the terms: **key, legend, symbol, feature**.
- Draw a Career Map based on Luis’s story.

MATERIALS

- Chart paper and markers
- Teacher’s map of Luis’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 subway map? What are some of the features and symbols on it and what do they represent?

- Example: Different colored lines, representing subway lines, squares for terminal stations, open circles and closed circles for express and local stops, dotted lines for subway tracks currently under 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.
Draw Luis’s Career Map

Divide students into groups to draw Luis’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. Before you draw the map, list the different places Norberto either studied at or worked in order. Next to each place, list anything Luis did to help him move forward in his career.

   > Example: Talking to others to learn more or joining a club at school.

2. On a separate piece of paper, draw a map as follows:
   - Write the places he studied or worked and draw a circle around each one.
   - Write the steps Luis 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 showing an order of progression.

3. Draw a legend or key, explaining what the circles, boxes and dotted lines mean.
Multiple Paths: How Personal Factors Impact Career Movement

Students consider what goes into choosing a career path. What would make someone interested in Food Production become a Maintenance Mechanic as opposed to a Sales Representative? 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 Food Production, or pursues higher-level careers that require advanced degrees?

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 clients or working with technical equipment.

› **Their time**. A career change might require a lot of education, which they might, or might not have.

› **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?
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 Food Production and get a taste of on-the-job training—very common in this industry—straight from a real life Food Manufacturer’s training manual. It is recommended that all activities in this series be done sequentially.

ACTIVITIES IN THIS SERIES

3.1 • Job-Seeker Terminology

3.2 • Know Before You Enroll

3.3 • Developing Questions: Job Training Programs in Food Production*

3.4 • On the Job Training: Reading a Food Safety Manual for Employees
Job-Seeker Terminology

Students learn terminology about training and employment that can be useful for any job-seeker, regardless of the industry they are interested in.

**PREP**

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

**EXPLAIN**

1. Explain that there are lots of programs that help people find jobs and help employers fill positions, and lots of differences between them.

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>
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.

“I 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, Workforce 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) 474-3989 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 #1.

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. ________________________________

__________________________________________________________________________

__________________________________________________________________________

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**Developing Questions: Job Training Programs in Food Production***

Students learn about local training programs available for careers in Food Production by researching training websites and discussing their findings.

**PREP**

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

- While there are many job training and certificate programs that can lead to fruitful career paths in Food Production, many of them may not be immediately recognizable to students as relevant to this sector. For example, many training programs prepare students for careers in a variety of Manufacturing settings, including Food Manufacturing. Examples of these include electrical, mechanical, maintenance/repair, and HVAC/R (Heating, Ventilation, Air Conditioning and Refrigeration) training.

- In order to help students identify these careers and programs, it can be helpful to use information on the stages of the food system from *Unit 1: Section 5*. Section 5.3 is a brainstorm activity about the careers included at each stage of the food system. If you have not already done this activity, it could be helpful to do, or review if you have.

- The AG Explorer career database, featured in *Unit 2: Section 3*, can also help you better understand how these types of careers relate directly to Food Production settings. Conducting an AG Explorer search for a particular career – Electrician, for example – will provide you with a short summary of what someone with this job does in a Food Production setting and where they are likely to be employed. Due to the significant overlap with other Manufacturing/Production industries, it will be important to discuss with students how these careers and programs relate to Food Production, while at the same time recognizing the utility of training and work experience that spans a range of career options across industries.
Lesson Guide

Section 3.3

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

EXPLAIN

1. One option for preparing to enter the Food Production workplace is a job training program. While completing a job training program is not a requirement to obtain employment in this sector, many Food Production employers look favorably on applicants who have finished job training programs because it shows that the candidate has some relevant foundational knowledge, as well as the commitment and ability to work hard and finish an industry-related program of study. Although on-the-job training is very common in the Food Production sector, employers' ideal candidates for mechanical, technical, and electrical jobs will have already completed basic job training programs in the appropriate specialized area. This kind of training can make a job applicant much more attractive to an employer and therefore, more likely to get hired than someone without previous training.

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.

2. Tell students that today they will research job training programs in Food Production, including ones for Agriculture, HVAC/R and Advanced Manufacturing (various jobs).* Before they read about these programs, they are going to brainstorm questions that they might ask when investigating them.

3. Divide the students into groups. Ask groups to brainstorm questions they might ask about a job training program. They may want to recall some of the job training tips from the previous activity as they develop their questions.

4. Once the brainstorms are complete, have students share their lists of questions with the class. Take notes on the board to create a master list of questions, and add questions they 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?

5 Distribute the *Developing Research Questions for Job Training Programs* worksheet, and have students write 6 questions from their brainstorm or others they think of that they want answered when they research job training programs. Students should leave the bonus question to be answered after they complete their research.

6 While there are many job training and certificate programs that can lead to fruitful career paths in Food Production, many of them may not be immediately recognizable as relevant to this sector. For example, many training programs prepare students for careers in a variety of Manufacturing settings, including Food Manufacturing. Manufacturing settings are typically factories. Can you think of an example of a career you might find in different kinds of Manufacturing factories, including Food Manufacturing?
  > Electrician, Mechanic, Machine Operator, Packaging and Labeling, Engineer

7 Choose an example provided by students and discuss how it might relate directly to Food Manufacturing. What might a person with that job do in a Food Manufacturing factory specifically? This is a good time to point out how a training program can give someone skills that are potentially transferable across different kinds of Manufacturing/Production.

8 If students have access to computers, distribute the *Job Training Programs Research* worksheet and let students choose from the following training websites to research a training program. Inform students that on community college or vocational school websites, they will want to look for programs in Adult or Continuing Education. Many education facilities also have what’s known as Career and Technical Education (CTE) programs, but these are typically for students who are enrolled as juniors or seniors in high school. Write the following URLs on the board (or display using a projector):
- **Advanced Manufacturing (various jobs):** Advance Buffalo
  https://labor.ny.gov/careerservices/advance-buffalo/advance-buffalo-overview.shtm

- **Urban Agriculture:** Farm School NYC
  http://www.farmschoolnyc.org/

- **Beginning Farmers:** FARMroots, Beginning Farmer Program
  https://www.grownyc.org/farmroots/nfd

- **Welding:** CitiBoces
  https://www.citiboces.org/Page/405

- **HVAC/R Technician:** OCM Boces
  http://www.ocmboces.org/teacherpage.cfm?teacher=1351

- **Baker:** Hot Bread Kitchen
  https://hotbreadkitchen.org/bakers-in-training/

8. Ask students to complete the bottom half of *Developing Research Questions for Job Training Programs* worksheet. Circulate to help students notice which information is and isn’t on the website.

9. If computers are not available, distribute paper copies of the job training programs listed above.

**DISCUSS**

- What did you learn from this research about job training programs (about the programs, possible careers, or how to research a training program)?

- What else would you need to do besides look at the website to be fully informed about the training program?

- What qualities make a good job training program?

- Did you learn about a job training program that was interesting to you? Why or why not?
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. 

In your own words, describe how this job training program relates to Food Production.
What might a person with this training do in a Food Production setting?
## 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?
On the Job Training: Reading a Food Safety Manual for Employees

Students practice note-taking while learning about guidelines for ensuring food safety at a Food Production facility. After reading the manual, they assess their note-taking skills with an open-note quiz.

**PREP**
- Read *Food Safety Manual for Employees*
- Be prepared to explain vocabulary: **recall** (in context of food products)

**MATERIALS**
- *Food Safety Manual for Employees* article
- Quiz: *Safety in Food Production*
- Quiz: *Safety in Food Production* answer key

**EXPLAIN**

1. Ask students if anyone knows what a food recall is. Discuss and clarify what a food recall is and why they are sometimes necessary.

2. Ask students if they have ever experienced, been affected by, or can give an example of a food recall they have seen or read about.

3. Food safety is a crucial part of keeping the public safe. Food can get contaminated by bacteria or germs at any stage of the food system, starting from the farm and going all the way to your table, including in Food Manufacturing factories. Food Manufacturing facilities (plants or factories) are fast-paced places filled with machinery, equipment, and food products at various stages of completion. Because there are many steps in food production, and thus, many opportunities for contamination, workers must follow food safety measures in a consistent manner. Each company creates an employee food safety manual to meet federal guidelines to ensure that workers handle food as safely as possible.

   **What are some potential ways that a worker might compromise the safety of their food product?**
   
   - **Sneezing into the product**
   - **Using dirty hands to handle food**
   - **Hair falling into the product**
Before Food Production workers can begin their work, they must receive food safety training and understand the basics of sanitary practices. Furthermore, facilities are subject to regular inspections to ensure good manufacturing practices.

4 We’re going to read a sample food safety manual from a Food Production company. 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.

5 Distribute the Food Safety Manual for Employees. 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.

6 Ask students to get into pairs and compare their notes. Ask students to reread the safety manual a second time to see if they missed any important points. Remind them not to underline everything or write everything down word for word on their sheet of paper. Instead, students should identify key words, big ideas or interesting points.

7 Ask students to put the reading away, and distribute Quiz: Safety in Food Production. 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.

8 Ask students to exchange papers and have their notes and the manual in front of them. They will correct each other’s answers based on their notes and the safety manual. Ask for volunteers to discuss their answers. You can use the Quiz: Safety in Food Production 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 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?
1 PERSONAL HYGIENE

Injury or Illness

- No person affected, a carrier of, or exposed to the following shall work with ingredients or finished products, these include:
  - Contagious Disease
  - Boils, open sores
  - Infected Wounds
  - Other sources of microbiological contamination

- A physician shall make the final decisions in all questionable cases.

Nails

- Nail polish and fake nails are not permitted in the plant.
- Hand and nails MUST be kept clean at all times.

Jewelry

- Rings, earrings, necklaces, watches and other jewelry shall not be worn in the plant because:
  - Jewelry may fall into the product
  - Jewelry cannot be adequately sanitized against bacterial transmission
  - Jewelry may present a safety hazard when using equipment

Hair and Beard Restraints

- All employees must wear hairnets while in the plant. Baseball caps, winter caps, bandanas, etc. are not considered acceptable hair restraints.

No hair is permitted outside of hairnet

Correct
A neat mustache may be worn. Handlebar mustaches are not acceptable unless a beard net is worn.

A neat beard is permissible if the employee wears a beard restraint. Beard restraints are required for goatees.

Long sleeves or plastic sleeves are required to be worn by employees who work directly with exposed product.

### Safety Shoes
- Safety shoes add safety against slips and falls.
- Shoes do not have laces so they don’t harbor bacteria.
- Shoes do not leave the plant so there is no cross-contamination.

### Smoking
- Smoking is not permitted anywhere on the premises.
- Gum and smokeless tobacco use is not permitted in the plant and should not be carried in employees’ work clothes at any time.

### Candy and Gum Chewing
- Employees are not allowed to chew gum, eat hard candies or use cough drops as these items may end up in the product.
- Employees contaminate their hands each time they put things in or take things out of their mouth.

## 2 SANITARY PRACTICES

### Hand Washing and Sanitizing
- Wash and sanitize hands thoroughly in hand washing facility:
  - before starting work
  - after each absence from work area
  - after visiting restroom
  - any time hands have become soiled or contaminated
- Sanitize when entering production/packaging from another department or hallway.

Source: https://benefitsbridge.unitedconcordia.com/national-clean-hands-week-how-to-encourage-your-staff-to-wash-their-hands/
After Hand Washing and Sanitizing

After washing/sanitizing, **AVOID:**

- touching face, wiping forehead, placing fingers on or in mouth, nose, ears
- scratching uncovered areas of the head or body
- handling product samples in an unsanitary manner
- uncontrolled, uncovered coughing or sneezing

*Notify your supervisor and leave area if excessive coughing/sneezing occurs.*

Wash and sanitize hands before returning to work.

---

Hand Washing Instructions (diagram)

![Hand Washing Instructions Diagram](https://www.lhsfna.org/index.cfm/lifelines/december-2013/washing-hands-properly-is-your-ticket-to-good-health/)

Hand sanitizer is not a substitute for hand washing.
Section 3.4

Foot Baths and Foot Foamers

- The bacteria that are present on shoes are a major source of contamination.

- Foot baths are areas or machines where workers clean their shoes before entering or leaving areas where food is being processed. All employees and visitors must use the foot baths to minimize the spread of bacteria due to foot traffic.

- Foot baths must be cleaned, refilled and tested each shift.

If footbaths are dirty they can be a source of contamination.

Wooden Handles, Ladders, Etc.

- Wooden handles are not acceptable on equipment in processing and packaging areas.

- Undesirable bacteria can live and grow in the scratches, crevices and cracks in the wood.

- All handles should be made of fiberglass or plastic.

Source: https://www.weberscientific.com/disinfectant-mat-sanitizing-foot-bath

QUIZ: Safety in Food Production

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

1. What are two reasons jewelry is not allowed in a food production facility?
   1. 
   2. 

2. Why do the safety shoes required by the company have no shoe laces?

3. What is one reason workers are not allowed to chew gum, eat hard candies, or use cough drops on the job?

4. Name two situations when a worker should wash and sanitize his or her hands:
   1. 
   2. 

5. After washing and sanitizing hands, what should a worker avoid doing? Name three things:
   1. 
   2. 
   3. 
6. What should you do if you start sneezing or coughing excessively?

7. **True** or **False**? If a worker is late for his or her shift, it is acceptable to use hand sanitizer instead of washing with soap before entering the work area.

8. What is the purpose of foot baths and foot foamers?

9. Why are wooden handles on equipment unacceptable in processing and packaging areas of a food production facility?
QUIZ: Safety in Food Production (ANSWER KEY)

1. What are two reasons jewelry is not allowed in a food production facility?
   Jewelry may fall into the product; jewelry cannot be adequately sanitized against bacteria transmission; and jewelry may present a safety hazard when using equipment.

2. Why do the safety shoes required by the company have no shoe laces?
   Shoe laces may contain or carry bacteria into the facility.

3. What is one reason workers are not allowed to chew gum, eat hard candies, or use cough drops on the job?
   These items may end up in the product they are manufacturing; in addition, workers contaminate their hands each time they put things in or take things out of their mouth.

4. Name two situations when a worker should wash and sanitize his or her hands:
   Before starting work; after each absence from work area; after visiting the restroom; any time hands have become soiled or contaminated.

5. After washing and sanitizing hands, what should a worker avoid doing? Name three things:
   Workers should avoid: touching face, wiping forehead, placing fingers on or in mouth, nose, ears; scratching uncovered areas of the head or body; handling product samples in an unsanitary manner; uncontrolled, uncovered coughing or sneezing.

6. What should you do if you start sneezing or coughing excessively?
   Notify your supervisor and leave area if excessive coughing/sneezing occurs; wash and sanitize hands before returning to work.

7. If a worker is late for his or her shift, it is acceptable to use hand sanitizer instead of washing with soap before entering the work area. True or False?
   False. Hand sanitization is not a substitute for hand washing.

8. What is the purpose of foot baths and foot foamers?
   Foot baths clean bacteria off workers’ shoes when they enter and leave areas where food is being processed. Foot baths and foot foamers reduce the spread of bacteria since shoes are a major source of contamination.

9. Why are wooden handles on equipment unacceptable in processing and packaging areas of a food production facility?
   Undesirable bacteria can live and grow in the scratches, crevices and cracks in the wood.
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 and SUNY offer dozens of certificate and degree programs in Food Production, both for entry-level careers and more advanced level careers. Students do not need to choose one immediately, but should become comfortable learning how to research them.

ACTIVITIES IN THIS SERIES

4.1 • Using CUNY Websites to Find Degree and Certificate Programs in Food Production*

4.2 • Understanding CUNY Degree Program Requirements*

4.3 • SUNY Certificate Programs: Agriculture and Food Studies at Monroe Community College*

4.4 • How Do I Enroll in CUNY?*
Background on CUNY*

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. Degree programs are offered through the college’s academic departments. Certificate programs are generally offered through the Continuing Education departments.

CUNY COMMUNITY COLLEGES

CUNY’s community colleges, also known as 2-year colleges, include the Borough of Manhattan Community College, Bronx Community College, Guttman Community College, Hostos Community College, Kingsborough Community College, LaGuardia Community College and Queensborough Community College. These colleges offer Associate’s degrees and Certificates. Many adult education students enter degree programs through CUNY’s community colleges.

CUNY SENIOR COLLEGES

CUNY’s senior colleges include Baruch College, Brooklyn College, Queens College, York College, The City College of New York, Lehman College, Hunter College and John Jay College of Criminal Justice. All of these offer Bachelor’s degrees. Medgar Evers College, New York City College of Technology and the College of Staten Island offer Bachelor’s and Associate’s degrees.

Background on SUNY

SUNY is the largest public university system in the country. It includes 64 community colleges and universities and grants degrees at all levels. Operating all around New York State, 93% of New Yorkers live within 15 miles of a SUNY school.
Understanding Degrees vs. Certificates

Most CUNY colleges* offer both certificate and degree programs. Following are some of the main distinctions.

**WHAT ARE DEGREES AND CERTIFICATES?**

College degrees require several years of study and include coursework in a student’s major as well as foundational coursework in subjects like English, Math and Science. Degree programs require that students have high school or equivalent diplomas, be accepted for admission to the college, and pass placement exams before enrolling in courses for credit. Most Associate’s degrees require 60-65 credits.

Certificate programs vary in their requirements and details. Some are credit-bearing, while others are not. Most require a high school or equivalent diploma, but some do not. Some certificate credits earned may transfer into a degree program if students decide to pursue a degree at a later date. Some lead to licensure, which may have requirements of its own, such as legal residency.

*RAENs will provide regional adaptations.
HOW CAN I PAY FOR DEGREES AND CERTIFICATES?*

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. 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.

WHICH IS BETTER, DEGREE OR CERTIFICATE?

Both are valid and useful forms of education. 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.
Using CUNY Websites to Find Degree and Certificate Programs in Food Production*

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

**PREP**

- While CUNY does not have a lot of degrees specific to Agriculture and Food Manufacturing due to the nature of its urban environment and real estate premiums, there are many CUNY degree and certificate programs that can lead to fruitful career paths in the Food Production sector, for example, Mechanical Engineering, Welding, or Bioengineering. In order to identify which careers and programs can lead to careers in Food Production, it can be helpful to refer to information from *The Food System and Supply Chain Series (Unit 1: Section 5)*, to identify the careers included at each stage of the food system. In addition, the Career Cruising and AG Explorer career databases, featured in *Unit 2: Section 3*, can help you better understand how those careers relate directly to Food Production settings. Since it might not always be obvious, it will be important to discuss with students how these careers and programs relate to Food Production. These resources can assist you in facilitating that discussion. Below is a list of Food Production-related programs available at one CUNY campus, City Tech.

- Go to the New York City College of Technology (City Tech)* website, [www.citytech.cuny.edu](http://www.citytech.cuny.edu). Under the *Academics* tab near the top of the page, click on *Degrees & Areas of Study* from the drop-down menu. Click on the boxes that relate to Manufacturing, such as *Engineering Technology, Applied Arts and Sciences*, and *Design and Media*.

  In the left-hand bar, click on *Continuing Education*, then scroll down the page to familiarize yourself with the workforce programs related to Food Production, such as the Business and Industry Training Center and the Workforce Development Center. Click on *Continuing Studies Center* to learn about the City Tech non-degree offerings related to Food Production.
Section 4.1

Degrees & Areas of Study

Through its Schools of Technology & Design, Professional Studies and Arts & Sciences, City Tech offers 53 degree programs in the technologies of art and design, business, computer systems, engineering, entertainment, health care, hospitality, human services, the law-related professions, career and technology teacher education, and the liberal arts and sciences.

Its 27 associate and 26 baccalaureate degree programs provide a rare blend of specialized technological instruction and broad education in the liberal arts and sciences. Many of these programs are offered nowhere else within the CUNY system or in the New York metropolitan area.

Filter Results By Areas of Study:

- All Areas of Study
- Applied Arts & Sciences
- Applied Mathematics
- Architectural Technology
- Business & Hospitality
- Certificate
- Design & Media
- Engineering Technology
- Healthcare
- Information Technology
- Public Service
- Teacher Education
- Art & Sciences
- Biomedical Informatics
- Career & Technology Teacher Education
FOOD PRODUCTION-RELATED DEGREE PROGRAMS AVAILABLE AT CITY TECH

Design & Media:

*Industrial Design*
Associate in Applied Science (AAS) in Industrial Design Technology

Applied Arts & Sciences:

*Chemical Technology & Applied Chemistry*
Associate in Science (AS) in Chemical Technology
Bachelor of Science (BS) in Applied Chemistry

Engineering Technology:

*Electrical Engineering & Telecommunications Technologies*
Associate in Applied Science (AAS) in Electrical Engineering Technology
Bachelor of Technology (BTECH) in Electrical Technology

*Mechanical Engineering Technology*
Associate in Applied Science (AAS)
Bachelor of Technology (BTECH) in Mechanical Engineering Technology

*Computer Engineering Technology / Electromechanical*
Associate in Applied Science (AAS) in Electromechanical Engineering Technology
Bachelor of Technology (BTECH) in Computer Engineering Technology

Business and Hospitality:

*Marketing Management & Sales*
Associate in Applied Science (AAS) in Marketing Management and Sales

Information Technology:

*Computer Science*
Associate in Science (AS) in Computer Science

FOOD PRODUCTION-RELATED NON-DEGREE OFFERINGS AT CITY TECH

<table>
<thead>
<tr>
<th>Welding</th>
<th>Renewable Energy Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refrigeration</td>
<td>Food Protection</td>
</tr>
</tbody>
</table>

- Be prepared to discuss the terms: **college major**, **college degree**, **certificates** and **credential**. (See previous pages for definitions.)
- Write the URL for New York City College of Technology on the board:

  www.citytech.cuny.edu
MATERIALS

- This session requires use of a computer lab.
- Majors and Certificates Related to Food Production at New York City College of Technology* worksheet
- Exploring a College Degree Related to Food Production* worksheet

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 in Food Production do not require more than a high school diploma or a certificate, so both are important to consider. Although you can get a job in Food Production without a degree or certificate, some jobs in the field do require one. Today you’re going to explore the programs related to Food Production that New York City College of Technology* offers.

4. While CUNY does not have an excess of Agriculture and Food Manufacturing specific programs due to the nature of its urban environment, high cost of real estate, and decline of factories, there are many CUNY degree and certificate programs that can lead to fruitful career paths in the Food Production sector. Many have to do with the science, engineering, and mechanics used in Food Production, though these same degrees could be applied in other areas of Manufacturing that are not food related, for example, Mechanical Engineering, Welding, Bioengineering, or Biology and other sciences. As a result, most of the programs you’ll learn about today don’t have the words “Food” or “Food Production” in their title, which might make identifying Food Production-related programs challenging. Therefore, it is important to read the program descriptions to see how they might apply to Food Production.

   How do you think a degree in Mechanical Engineering could relate to careers in Food Production?
   - Answers will vary.
Before we explore CUNY programs related to Food Production at one CUNY campus, let’s get familiar with the campus website. Ask students to navigate to the website written on the board. Once students have navigated to the homepage, ask them to click on Academics, then on Degrees & Areas of Study and look over the page.

Facilitate a brief discussion about the website that allows students to become familiar with its organization. Ask questions such as:

Some key questions include:

- What do you see on this page?
- What kind of information do you think this part of the site will contain?

Ask follow-up questions, such as:

- Where do you see that?
- Where does it say that?
- Where did you find that?
- How do you know?
- How did you get there?

From www.agexplorer.com:

“Mechanical engineers are involved with the generation, distribution and use of energy. This could be a part of the control and automation of manufacturing systems, the design and development of machines or the solutions to environmental problems. They provide leadership in maintenance work processes and determine opportunities for improved efficiency.

Mechanical engineers can be found in laboratories, plants or corporate offices typically in engineering services, research and development, or manufacturing. Specifically, agriculture mechanical engineers may work on equipment design, motorized processes, refrigeration, robotics, etc."

Visit https://www.agexplorer.com/career/mechanical-engineer for examples of specific job duties.
7 Distribute *Majors and Certificates Related to Food Production at New York City College of Technology* worksheet. Ask students to use the website to identify majors that they think could lead to careers in Food Production and write them on the worksheet.

8 Ask students to share their answers and discuss together how each of their choices relates to careers in Food Production.

9 Ask students to click on **Continuing Education** in the left-hand bar, then **Continuing Studies Center**, then identify certificates that prepare students for careers in Food Production, and write them on the worksheet.

10 Ask students to share their answers and discuss together how each of their choices relates to careers in Food Production.

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

12 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 in depth: the Associate’s degree in Applied Science (AAS) in Mechanical Engineering Technology. Ask students to navigate to the description of this degree. They should navigate back to **Academics**, then to **Degrees & Areas of Study**, then **Engineering Technology**, then **Mechanical Engineering Technology**, then **Associate in Applied Science (AAS)**.

13 Distribute *Exploring a College Degree Related to Food Production* worksheet. Ask students to complete the worksheet based on the information in the description of the AAS in Mechanical Engineering Technology degree program.
Majors and Certificates Related to Food Production at New York City College of Technology*

Use the college website to find majors and certificates related to Food Production offered at the college. For college majors that lead to degrees, look under the Degrees and Areas of Study section of the website. For certificate programs, look in the Continuing Education Department.

College Website: http://www.citytech.cuny.edu

MAJORS LEADING TO DEGREES RELATED TO FOOD PRODUCTION

1. 
2. 
3. 
4. 

Describe where on the college website you found this information:

CERTIFICATES RELATED TO FOOD PRODUCTION

1. 
2. 
3. 
4. 

Describe where on the college website you found this information:
Exploring a College Degree Related to Food Production*

Use the New York City College of Technology website (www.citytech.cuny.edu)* to read about the Mechanical 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. Name four careers this degree prepares students for.
   1. ________________________________
   2. ________________________________
   3. ________________________________
   4. ________________________________

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

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

6. Is there an internship, placement, or practice portion of this program? Explain.

7. 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 CUNY Degree Program Requirements*

Students read a description of a sample major related to Food Production, the AAS in Mechanical Engineering Technology, and identify the roles of various course 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 Mechanical Engineering Technology major at New York City College of Technology on the next page as an example.

- Read the Mechanical Engineering Technology description, including both the Overview and Degree Requirements on the New York City College of Technology website. In the Degree Requirement section, read course descriptions linked to each course requirement. See the screenshot on the next page.

- Be prepared to lead students through website navigation. Website navigation is an important skill for successfully researching and registering for college courses.

For guidance on how to lead website navigation, refer to “How to Lead Students Through a Website Navigation” in the User’s Guide, found at www.tinyurl.com/cunycareerkits
Section 4.2

From http://www.citytech.cuny.edu/mechanical/mechanical-technology-aas.aspx
LESSON GUIDE

MATERIALS

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

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 Mechanical Engineering Technology as a sample major. In the future, you will be able to research a major or certificate that you are interested in, using your skill in navigating college websites.

   What do you think the Mechanical Engineering Technology major is all about?
   - The major prepares students to work on the design and development of new products, using technologies such as systems simulations and CAD (computer aided design).

   How do you think this major is related to Food Production?
   - Mechanical engineering and technology are essential to the design, maintenance and repair of machines and technology used to produce and process food.

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

3. Write [www.citytech.cuny.edu](http://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 click the Mechanical Engineering Technology box, then find and click on the A.A.S. in Mechanical Engineering Technology. Make sure they have navigated through each step before moving on to the next one.

4. Ask students to read the description of the major in the Overview tab and identify some of the tasks they think might be required of people who work in the field of Mechanical Engineering Technology, in general and as it relates to Food Production. Write their responses on the board.
   - They might say things like:
     - Design computers and machines used in Manufacturing, or design ways of manufacturing food products.

   Visit [https://www.ageexplorer.com/career/mechanical-engineer](https://www.ageexplorer.com/career/mechanical-engineer) for examples of specific job duties.
5 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.

6 Divide students into groups of three. Ask each group to click on the *Degree Requirements* tab and read the information listed. Each required course is linked to a description of the course. They will need to read the course descriptions to answer the questions on the worksheet.

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

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

1 **English Composition**: How will the required English courses help Mechanical Engineering Technology professionals? *Read the course descriptions to answer this question.*

2 **Mathematical and Quantitative Reasoning**: Why do Mechanical Engineering Technology professionals need to use math? *Read the course descriptions to answer this question.*

3 **Life and Physical Sciences**: Why do you think these courses are required? *Read the course descriptions to answer this question.*
4. What do students do in MECH 2322 and why might it be a useful course for Mechanical Engineering Technology students?

5. What is MECH 1101? Why is it required for Mechanical Engineering Technology students?

6. Having learned about the Mechanical Engineering Technology major, is this a career you would consider pursuing? Why or why not?
SUNY Certificate Programs:
Agriculture and Food Studies at Monroe Community College*

Students learn about certificate programs by reading a description of a Food Production certificate offered at SUNY Monroe Community College, and developing questions based on what they read.

MATERIALS

- Monroe Community College Agriculture and Food Studies Certificate Program handout

EXPLAIN

1. Certificate programs can be credit-bearing or not, require one semester or many semesters of study, may be open to diploma-holders only or may be open to those who have not yet earned diplomas. There is a lot of variation in certificate programs. 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 or Workforce offices of many campuses.

2. We are going to look at a certificate program that is offered at a SUNY college. After reading the certificate program descriptions, you will develop questions you have about the program.

3. Ask students to navigate to www.monroecc.edu. Navigating to the Agriculture and Food Studies certificate requires several steps. Be sure all students are keeping up, as you guide them through the following navigation:
1. Under the About MCC drop-down menu, click on Workforce Development and scroll down.

2. From the choices of 8 divisions near the bottom of the page, select Agriculture and Life Sciences Institute. (If prompted by a pop-up box, click Learn More)

3. Ask students to read the description of the Agriculture and Life Sciences Institute. When students are finished, have them turn to a partner and share one thing they learned and one question they have.

4. When students are finished, ask them to click on Certificate Program. Ask students to read the entire page, including the program description and required courses. Students should also read descriptions for the individual courses by clicking on Course Listings in the left-hand menu.
Ask students to work in pairs and write five questions they have about entering this program.

Ask students to share their questions with the class.
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 with Step 1) **Earn high school or equivalent diploma.**

**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 STEM Careers in Food Production

Having learned about certificates and Associate’s degrees that lead to careers in Food Production, students now learn about higher level careers in Food Production that require Bachelor’s degrees or higher in STEM (Science, Technology, Engineering and Math) fields. They read entries in a career database and practice paraphrasing, making inferences and giving a presentation.

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 Agricultural Engineer, Agronomist, Food Scientist, Electrical Engineer, Veterinarian and complete the Teacher’s Version: Advanced STEM Careers in Food Production worksheet. You can also use the AG Explorer database www.agexplorer.com. The above STEM careers are described on both sites.
- A computer lab is necessary for this class. If not available, print the career descriptions from Career Cruising or AG Explorer for use with students.
- Write www.careercruising.com or www.agexplorer.com on the board, depending on which website you will use.
- Students should already be familiar with paraphrasing, making inferences and summarizing. Prepare to review these skills as necessary.

MATERIALS

- Advanced STEM Careers in Food Production handout
- Teacher’s Version: Advanced STEM Careers in Food Production worksheet

EXPLAIN

1 Food Production is a sector that does not always 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 typically earn. Some workers start out their education pursuing a four year degree, while others decide to pursue college degrees after working entry-level positions in order to advance in the field. Today we’re going to learn about careers in Food Production that require at
least a Bachelor's degree in a STEM (Science, Technology, Engineering, or Math) field. These careers are becoming much more common and in demand as the world of Food Production becomes more technologically advanced. We are going to use a career database to research advanced STEM careers in Food Production, paraphrasing the information we read. Then you will present the career to the class.

Distribute the Advanced STEM Careers in Food Production handout. Divide the class into five groups. Assign each group one of the STEM careers—Agricultural Engineer, Agronomist, Food Scientist, Electrical Engineer, Veterinarian. In their group, students should take 2 minutes to discuss what they think their assigned career does at work. Encourage them to guess and freely discuss their ideas without censoring themselves. They will learn more about this career momentarily.

Have all students navigate to Career Cruising (or AG Explorer). If you have not already used Career Cruising or AG Explorer, explain that 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. Next have all students enter “Environmental Engineer” in the search bar at the top of the page. This is not a career they will research in-depth. Instead, the class will look at this career description to learn the features of the site before conducting research on their assigned career with their group.

*The following questions may need to be modified slightly for use with AG Explorer. The goal is to get students comfortable with navigating the database.

Ask students what they see on this page.

 › At a Glance.

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, Earning, Education, etc.

What do you think you will find there?

 › More detailed information about each of those topics, concerning the Environmental Engineering career.

Now look at the worksheet. If you were going to complete the worksheet for Environmental 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 Environmental Engineering career that you will share with the class. Students should already be familiar with paraphrasing and summarizing. Review these skills if necessary.

Have a few pairs share their descriptions.

Now you are going to work with your group to read about your assigned STEM career, and complete the worksheet by paraphrasing the information you find. *Note:* 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 STEM career they researched.

- 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?

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.

**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 improvements.

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: Advanced STEM Careers in Food Production

FOR THE TEACHER: Complete this key based on Career Cruising or AG Explorer 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>Agricultural Engineer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agronomist</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Scientist</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical Engineer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veterinarian</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Advanced STEM Careers in Food Production**

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

**Type of STEM Career: _____________________________**

<table>
<thead>
<tr>
<th>What they do at work (Duties)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Why a business needs them (Context)</td>
<td></td>
</tr>
<tr>
<td>How to become one (Education)</td>
<td></td>
</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>
</tr>
</tbody>
</table>
“Once social change begins, it cannot be reversed. You cannot un-educate the person who has learned to read. You cannot humiliate the person who feels pride. You cannot oppress the people who are not afraid anymore.”

— Cesar Chavez