

# Grain Science

## Lesson 10: Careers and Education



<b>Unit:</b>	Grain Science
<b>Estimated Time:</b>	50 Minutes
<b>Age of Learners:</b>	9th-12th Grade
<b>Equipment, Supplies, References, and Other Resources:</b>	
<ul style="list-style-type: none"><li>• Careers worksheet</li><li>• Student devices for internet search</li></ul>	

<b>Instructor Directions &amp; Estimated Time</b>	<b>Content Outline and/or Procedures</b>
<p><b>Objectives</b></p>	<ol style="list-style-type: none"> <li>1. Explore the variety of careers available in the grain science industry, focusing on milling science, feed science, and bakery science, by researching different job roles, responsibilities, and educational requirements.</li> <li>2. Investigate specific careers within milling science, feed science, and bakery science, understanding the day-to-day responsibilities, essential skills, and potential salary ranges associated with each role.</li> <li>3. Analyze interviews with alumni who pursued careers in bakery science, summarizing their roles, responsibilities, and personal experiences in the industry to gain insights into the practical aspects of working in the field.</li> <li>4. Engage in independent research to explore job opportunities in the grain science industry, identifying job titles, descriptions, essential skills, educational requirements, and potential locations, fostering awareness of career pathways and prospects within the industry.</li> </ol>
<p><b>Interest Approach</b></p>	<p>Over the last two weeks we have followed the journey of the grain from the seed to the mill. We have learned the major steps in the milling process, how to mill feed, and mix and proof bakery products. Who are the people that have these jobs in the mills? What are their jobs called? Today we will learn the variety of careers in the grain science industry.</p>
<p><b>Grain Science Career Search</b></p> <p>~ 20 minutes</p> <p><i>Read the introduction together as a class or students can read it individually.</i></p> <p><i>Students will use device to search the internet for one of the careers listed in each field. They can go to a career site like "Indeed" to use information provided.</i></p>	<p>Careers in the grain science encompass all aspects of the milling, feed, and bakery science industries. In this lesson, you will learn about grain science careers from the perspectives of college bakery science graduates. You will explore careers in milling, feed, and bakery science the responsibilities and education requirements.</p> <p><b>Directions</b></p> <p>Select one career from each of the three grain science areas. Using the internet, search for that career to the educational or training requirements, responsibilities, and salary of each in the space provided.</p> <p><b>Careers in Milling Science and Management:</b></p> <ul style="list-style-type: none"> <li>• Plant Management</li> <li>• Head Technical Miller</li> <li>• Grain Purchaser</li> <li>• Quality Control Manager</li> <li>• Ingredient Procurement</li> <li>• Research and Development</li> <li>• Corporate Management</li> <li>• Equipment Engineering</li> <li>• Production Engineer</li> </ul> <p><i>continued on next page</i></p>

Instructor Directions & Estimated Time	Content Outline and/or Procedures
<p><b>Grain Science Careers, continued</b></p>	<p><b>Careers in Feed Science:</b></p> <ul style="list-style-type: none"> <li>• Equipment Manufacturing</li> <li>• Feed Ingredient Manufacturing</li> <li>• Feed and Pet Food Manufacturing</li> <li>• Pet Food Manufacturer</li> <li>• Pet Food Product Development</li> <li>• Quality Control Management</li> <li>• Exporter/Grain Buyer</li> </ul> <p><b>Careers in Bakery Science and Management:</b></p> <ul style="list-style-type: none"> <li>• Cereal Food Manufacturing</li> <li>• Food Ingredient Manufacturing</li> <li>• Research and Development</li> <li>• Commercial Bakery Operations</li> <li>• Management Positions</li> <li>• Technical Sales</li> </ul> <p>On the worksheet, you will select one career from each of the three main areas: milling science, bakery science, and feed science. You will use the internet to research the educational or training requirements, responsibilities, and salary for each chosen career. You will record your findings in the provided spaces on the worksheet.</p> <p>For example, if you selected “Milling Operations Manager” you could write that this career requires a bachelor’s degree in Milling Science, relevant internships, and certifications. They are responsible for overseeing milling processes and managing staff. The average salary is \$70,000 to \$90,000 per year.</p> <ol style="list-style-type: none"> <li>1. Milling Science</li> <li>2. Feed Science</li> <li>3. Bakery Science</li> </ol> <p><i>continued on next page</i></p>

Instructor Directions & Estimated Time	Content Outline and/or Procedures
<p><b>Grain Science Careers, continued</b></p>	<p><i>Other information that can be shared with students:</i></p> <p><b>Milling Science and Management Degree:</b></p> <ul style="list-style-type: none"> <li>• Milling Science students have the potential to earn a share of more than \$80k in scholarships offered within the major.</li> <li>• Milling Science graduates have had 100% job placement during the past five years.</li> <li>• Graduates of Milling Science program have a five-year starting salary average of \$70k or higher.</li> </ul> <p><b>Feed Science Degree:</b></p> <ul style="list-style-type: none"> <li>• Feed Science students have the potential to earn a share of more than \$40k in scholarships offered within the major.</li> <li>• Graduates of the Feed Science program have had 100% job placement during the past five years.</li> <li>• Feed Science graduates have a five-year starting salary average between \$50k - \$60k.</li> </ul> <p><b>Bakery Science and Management Degree:</b></p> <ul style="list-style-type: none"> <li>• Bakery Science students have the potential to earn a share of more than \$90k in scholarships offered within the major.</li> <li>• Bakery Science graduates have had 100% job placement during the past five years.</li> <li>• Graduates of this curriculum have a five-year starting salary average between \$50k-\$70k.</li> </ul>
<p><b>A Day in the Life of a Bakery Science Professional</b></p> <p>~ 10 minutes</p> <p><i>Students will use their devices to go to the website provided.</i></p>	<p><b>Directions</b></p> <p>Read two Alum Interviews (<a href="https://www.futureinbaking.com/blog">https://www.futureinbaking.com/blog</a>) and summarize their career in the bakery science industry in the spaces below. Include their role, day-to-day responsibilities, and their favorite part of being in the industry.</p> <p>Bakery Science Alum Interview 1</p> <p>Bakery Science Alum Interview 2</p>

Instructor Directions & Estimated Time	Content Outline and/or Procedures
<p><b>Optional Grain Science Job Search Activity</b></p>	<p><b>Research:</b> search internet for job in one of the above fields.</p> <ul style="list-style-type: none"> <li>• Job title</li> <li>• Job details (remote or in-person)</li> <li>• Salary</li> <li>• Job description</li> <li>• Essential skills</li> <li>• Education/preferred requirements/qualifications</li> <li>• Location</li> </ul> <p><b>Optional activity:</b></p> <ul style="list-style-type: none"> <li>• Students create a job listing flyer as employer.</li> <li>• Students create ‘TikTok’ inspired video as if they were marketing themselves for the job.</li> </ul>

	State Standards
<p><b>Language Arts</b></p>	<ul style="list-style-type: none"> <li>• <b>W.9-10.9.</b> Draw evidence from literary or informational texts to support analysis, reflection and research.</li> <li>• <b>SL.9-10.1a.</b> Be prepared to discuss, having read and researched material; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.</li> <li>• <b>SL.9-10.8.</b> Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.</li> </ul>
<p><b>Math</b></p>	<ul style="list-style-type: none"> <li>• <b>N.Q.1.</b> Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.</li> <li>• <b>N.Q.2.</b> Define appropriate quantities for the purpose of descriptive modeling.</li> <li>• <b>N.Q.3.</b> Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.</li> </ul>
<p><b>Science</b></p>	<ul style="list-style-type: none"> <li>• <b>HS-ESS3-4.</b> Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.</li> <li>• <b>MS-LS4-5.</b> Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.</li> <li>• <b>HS-ETS1-1.</b> Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.</li> </ul>

## Lesson 10: Grain Science Career Search Worksheet

Careers in the grain science encompass all aspects of the milling, feed, and bakery science industries. In this lesson, you will learn about grain science careers from the perspectives of college bakery science graduates. You will explore careers in milling, feed, and bakery science the responsibilities and education requirements.

### Directions

Select one career from each of the three grain science areas. Using the internet, search for that career to the educational or training requirements, responsibilities, and salary of each in the space provided.

#### Careers in Milling Science and Management

- Plant Management
- Head Technical Miller
- Grain Purchaser
- Quality Control Manager
- Ingredient Procurement
- Research and Development
- Corporate Management
- Equipment Engineering
- Production Engineer

#### Careers in Feed Science

- Equipment Manufacturing
- Feed Ingredient Manufacturing
- Feed and Pet Food Manufacturing
- Pet Food Manufacturer
- Pet Food Product Development
- Quality Control Management
- Exporter/Grain Buyer

#### Careers in Bakery Science and Management

- Cereal Food Manufacturing
- Food Ingredient Manufacturing
- Research and Development
- Commercial Bakery Operations
- Management Positions
- Technical Sales

1. Milling Science

2. Feed Science

3. Bakery Science

## Lesson 10: A Day in the Life of a Bakery Science Professional

### Directions

Read two Alum Interviews (<https://www.futureinbaking.com/blog>) and summarize their career in the bakery science industry in the spaces below. Include their role, day-to-day responsibilities, and their favorite part of being in the industry.

Bakery Science Alum Interview 1

Bakery Science Alum Interview 2

## Authors

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**Cover photo** courtesy Pat Hackenberg, *International Grains Program*

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Grain Science lessons are posted at:

<https://www.grains.k-state.edu/educator-resources/untitled.html>

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