9-Week Middle School Agricultural Education Curriculum

Emma Sunderman

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9-Week Middle School Agricultural Education Curriculum

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Iowa State University

College of Agriculture and Life Sciences

Ames, IA

2019

A creative component submitted to the graduate faculty in partial fulfillment of the requirements for the degree of:

MASTER OF SCIENCE

Major: Agricultural Education

Program of Study Committee:

Dr. Scott Smalley, Major Professor

Dr. Michael Retallick, Committee Member

Dr. Gregory Miller, Committee Members

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Chapter 1

1.1 Introduction

Agricultural literacy is not a new concern for agricultural educators or those involved in the agriculture industry. Agricultural literacy is defined as an understanding and possessing a knowledge of our food and fiber system. Someone that possesses such knowledge would be able to synthesize, analyze, and communicate basic information about agriculture (Frick, 1990). One way agricultural educators have tried to increase agricultural literacy is through the utilization of middle school agricultural education programs.

A middle school agricultural education program is often the starting point for students to explore pathways and occupations related to the agriculture industry and serves as a place for students to learn by doing. Students gain hands-on experience while learning about basic agricultural practices. Middle school programs can also serve as a vital recruitment tool for FFA chapters to increase membership when these students enter high school or join as middle school members if the school offers a middle school FFA chapter.

Unlike many core education classes such as science, math, and English, agricultural education courses are electives and not required for students to take. Because of this, there is a lack of established curriculum, standards, and objectives for middle school agricultural education. This lack of materials and information puts the responsibility of creating curriculum on individual program teachers. In the case that some states have recommended middle school curriculum, it is typically 10 years old. Therefore, providing incorrect statistics and information. There are very few curriculum resources targeted specifically for middle school students in agricultural education that are continually updated to provide accurate agricultural literacy knowledge and hands-on activities.
1.2 Purpose and Objectives

The purpose of this project was to develop a flexible agriculture curriculum for agricultural educators who teach an eighth-grade course. The following objectives were developed to provide direction to the project:

1. Create an introductory eighth-grade agricultural education curriculum to promote agricultural literacy.
2. Create an age-appropriate 9-week curriculum for teachers to follow for an eighth-grade course.
3. Develop an eighth-grade agriculture curriculum that is student-led and inquiry-based.

1.3 Need

Among other school duties, agricultural education teachers in Iowa and other states, often take on many responsibilities including training contest teams, supervising FFA activities, updating curriculum, and preparing daily lesson plans. These tasks alone can take up the majority of a teacher’s preparation time leaving minimal time to create and develop a middle school agricultural education curriculum. With little to no spare time, a need for an up-to-date, flexible, and easy to follow middle school agricultural education curriculum can be seen.

Chapter 2

2.1 Literature Review

Agricultural education instructors are in short supply. In 2016, 66 agricultural education teaching positions remained unfilled across the United States (National Teach Ag Campaign, 2017). According to the National FFA Organization (2018), of the over 11,000 agricultural education teachers, 23% have five or fewer years of teaching experience. In Iowa, nearly 80% of Iowa agricultural education instructors work in a single teacher program and over 50% of all
agricultural education instructors teach at least one middle school agriculture course during the school year (Iowa FFA Association, 2018). Because of this, in many cases, all the “burdens” of the program fall on that individual teacher. Roughly 40% of all Iowa agricultural educators are under the age of 30, which makes the above statistics more meaningful as the first few years of teaching can be the most critical, stressful, and load-bearing (Iowa FFA Association, 2018). With the number of current middle school programs and the increase of agricultural education programs across the state and nation, we see a need for an up-to-date middle school agricultural education curriculum.

In 1988, the National Research Council stated “agriculture is too important a topic to be taught only to the relatively small percentage of students considering careers in agriculture and pursuing vocational agriculture studies.” This statement still holds true in today’s school systems. In Iowa, most agricultural education courses are offered as electives to students to take if they are interested or if it happens to fit into their schedule. While agriculture courses are available to all students in schools with agricultural education programs, only a small portion of students are taking those courses and learning about such a vital topic.

In an effort to reach more students, middle school agricultural education programs have begun to develop across the state. Middle school is a critical time for young adolescents, and in order for these students to be successful, educators must realize that middle school students differ greatly from elementary and high school students and must develop their instruction and curriculum accordingly (Golden, Parr, & Peake, 2014). Because of this uniqueness, middle school provides the perfect starting point for students to begin their agricultural education studies.
As previously defined, agricultural literacy is an individual’s understanding and possessing a knowledge of our food and fiber system, so that someone that possess such knowledge would be able to synthesize, analyze, and communicate basic information about agriculture (Frick, 1990). If students take no other formal agricultural education courses, a middle school course can provide a foundation for every student to become literate in agriculture. In a 2007 study conducted by Knobloch, Ball, and Allen, they asked common core teachers if they saw an importance to including agriculture in their curriculum, and they found two common answers in their study. The first was that agriculture was taught only in certain situations that is, when the teacher had an interest. The second was that teachers lacked appropriate instructional resources. So, at best, middle school students were learning about small sectors of agriculture from teachers who had little to no agriculture experience and/or educational resources. By providing a stand-alone agricultural education course, middle school students would have to opportunity to learn about the diversity in agriculture and the many career opportunities it has to offer.

As we know, the first few years of teaching can be the most overwhelming in a teacher’s career, therefore adding the pressure of creating a middle school curriculum can be a daunting task. When creating a quality curriculum that will be shared across a wide area, Glatthorn, Carr, and Harris (2018), offer nine guidelines that should be followed. These guidelines include the following: (1) structure the curriculum so that it allows students and teachers to study the most important topics and skills, (2) structure the curriculum so that students use various learning strategies, (3) structure the curriculum so that students gain both knowledge and essentials skills, (4) structure the curriculum so that students individual differences are accounted for, (5) organize curriculum so that it provides sequential study, (6) emphasize both practical and academic
principles, (7) develop integrated curricula, (8) focus on a limited number of essential objectives, and (9) maintain an emphasis on learned curriculum.

Along with curriculum development skills, one would need good lesson planning skills. Good lesson planning is essential to the process of teaching and learning. Milkova (2012) offers six essential steps for preparing lesson plans: (1) outline learning objectives, (2) develop instruction, (3) plan specific learning activities, (4) plan to check for understanding, (5) develop a conclusion, and finally, (6) create a realistic timeline. These steps provide teachers with a starting point for developing lesson plans that fit into a curriculum. To follow the suggested curriculum development steps, lesson plans need to be created and taught in a sequential order in order to determine what went well and what lessons need revision.

To create these lesson plans, teachers have a variety of templates to choose from. One of the most popular lesson plan templates is the Madeline Hunter Lesson Planning Model. This model includes seven steps: (1) stated objectives, (2) anticipatory set, (3) input modeling/modeled practice, (4) checking understanding, (5) guided practice, (6) independent practice, and (7) closure (Wilson, 2018). Along with several popular lesson plans, many educational disciplines have developed their own lesson plan templates. Agricultural education is one of those disciplines where most templates include the following options: objectives, anticipatory set, instructor activities, content outline, student application, closure, and assessment. Educators have a variety of options to choose from when developing their lesson plans and it is important for them to select the best option that fits their individual and school needs.

Although lesson plans and curriculum should be sequential, it is also vital for curricula to be flexible, especially for use in a middle school agricultural education course. Teachers with a
middle school course often do not have a full year or even a full semester with these students due to scheduling conflicts. A flexible curriculum would allow teachers to select specific units and topics to teach, meaning the needs and interests of individual classes and students could be met. This flexibility means that each class would not be identical from year to year, but each class would still be gaining basic agricultural principles. While there are few studies on flexible curriculum, a flexible curriculum could lead to reduced teacher burnout and stress, especially in their early teaching years.

Chapter 3

3.1 Methods and Procedures

When determining many aspects of the new curriculum, several other curriculum resources were utilized including: The National FFA Food and Agriculture Literacy curriculum, Georgia Agricultural Education Middle School curriculum, and the Iowa Agriculture Literacy Foundation curriculum. Many discussions were had among fellow Iowa agricultural educators in the southwest district, other career and technical education instructors within the Bedford School District, and Bedford’s secondary instructional coach. These conversations were focused on the idea that each school that offers agricultural education to middle school students varies greatly in structure and length. Due to the lack of national and state standards, each program also varies in instruction. Through these conversations it was decided on average each middle school program lasted for nine weeks, and each instructor was striving to provide a hands-on learning environment where students could build a foundational knowledge about agriculture. These two aspects, length and content, were the main driving forces for the curriculum that was to be developed.
To create a comprehensive agriculture curriculum, the National FFA curriculum was utilized as a guide to decide upon the following six units: (1) defining agriculture, (2) agriculture perceptions, (3) agriculture products, (4) animal science, (5) plant science, and (6) United States agriculture to be included in the curriculum. After units were selected, it was determined lesson plans would be developed based on inquiry and student-driven instruction along with hands-on learning activities.

Inquiry, student-driven, and hands-on learning are not necessarily new topics in education, but previous curriculum resources have failed to provide such a framework for middle school agriculture education courses. In this curriculum, each lesson contains information that can be taught in under thirty minutes so that the remainder of the class, or the next class, can be devoted to completing a hands-on activity related to the content. These activities range from laboratory experiments to small group research projects. The learning by doing concept stems from David Kolb’s idea that “learning is the process where knowledge is created through the transformation of experience” (McLeod, 2017), meaning that students take abstract ideas and apply that knowledge to concrete experiences.

Along with the learning by doing concept, curriculum flexibility was another key guideline when developing the curriculum and lesson plans. With each middle school agricultural education program varying in structure and length, it is important that each of the units is able to be selected and taught in any order that fits the needs of each individual program. The lessons within each unit are strongest if taught sequentially, but they can also be selected on an individual basis for teachers with shorter courses. The introductory unit, defining agriculture, is suggested to be taught first in all courses so that students have a basic understanding of agriculture concepts before moving onto the more specific materials.
After the curriculum was developed, Carl Rankin, the secondary instructional coach at Bedford Community Schools, Andy Johnson, and Christy Spinler, two nearby agriculture teachers with middle school courses reviewed the curriculum and provided feedback. Their feedback included the idea of including a day of getting to know the students. This would allow the instructor to select ice-breaker games to further their understanding of their students in order to select which aspects of the curriculum to utilize. They also recommended labeling each unit and lesson on the student materials handbook.

Chapter 4

4.1 Product

The curriculum was developed in two documents. The first document is the instructor’s guide. This guide leads the instructor through units, a sample teaching calendar, all lesson plans, lab instructions, and student worksheets. The second document is the student’s guide. This document includes all note taking guides, activity sheets, and lab sheets the students will need to be successful in the course.

The documents are included below.
8th Grade Exploratory Agriculture (9-week course)

Instructor’s Guide
Exploratory Agriculture

Writer:
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Iowa State University

Program of Study Committee:
Dr. Scott Smalley, Major Professor
Dr. Michael Retallick, Committee Member
Dr. Gregory Miller, Committee Member

Volume: 1
Number: 1

Final Edition: December 2018
Acknowledgements

Exploratory agriculture is a curriculum developed for use in an eighth-grade nine-week course for Iowa agricultural educators.

Recognition is given to the many Iowa agriculture educators for providing their valuable time and suggestions in the creation of this curriculum.

Thanks are also extended to Dr. Scott Smalley, Dr. Michael Retallick, and Dr. Gregory Miller, who served as the program committee for this project.

Emma J. Sunderman
Project Coordinator
Iowa State University
Exploratory Agriculture

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Unit List

Getting to Know Your Students
1. Defining Agriculture
2. Agriculture Perceptions
3. Agriculture Products
4. Animal Science
5. Plant Science
6. United States
Competencies/Objectives

Unit 1-Defining Agriculture
1. Identify how agriculture impacts me on a daily basis
2. Explain the diversity of the agriculture industry
3. Identify and explain one career in the agriculture industry
4. Explain how agriculture impacts the economy on a local through global level

Unit 2-Agriculture Perceptions
1. Analyze common agriculture perceptions and differentiate between perception and reality
2. Identify three common characteristics of agriculturists
3. Define and assess standard agriculture industry practices

Unit 3-Agriculture Products
1. Identify local, state, and national agriculture commodities
2. Construct biodegradable plastic and identify the importance of corn in everyday items
3. Create ice cream in a bag from agriculture commodities
4. Compare and identify import and export countries and products

Unit 4-Animal Science
1. Identify byproducts generated from the animal industry
2. Trace the steps milk goes through to make butter
3. Identify specialty animal production systems and their importance to the agriculture industry
4. Explain and summarize the importance of a selected animal to the agriculture industry

Unit 5-Plant Science
1. Identify the 4 major parts of a plant and explain the functions of each
2. Calculate germination rate and identify what plants need to germinate
3. Identify and explain plant byproducts and their importance

Unit 6-United States
1. Classify animals and plants grown in different regions of the U.S.
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<td>Welcome &amp; Introduction, Icebreakers</td>
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<td>Defining Agriculture</td>
<td>Where would we be without agriculture?</td>
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<td>Where would we be without agriculture?</td>
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<td>A tent off the pathway-Research</td>
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<td>Career profile gallery walk</td>
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<td>Perception vs. Reality</td>
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<td></td>
<td>Agriculture Products</td>
<td>Commodity vs. Product</td>
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<td>Corn plastic lab</td>
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<td>Homemade ice cream in a bag</td>
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<td>Import vs. Export</td>
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<td>Animal byproducts breakout</td>
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<td>Animal byproducts breakout</td>
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<td>Butter lab</td>
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<td>Specialty animal</td>
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<td>Plant parts</td>
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<td>Germination lab</td>
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<td>Plant byproducts</td>
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<td>9</td>
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Defining Agriculture
### Getting to Know Your Students

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<th><strong>Teacher Activities:</strong></th>
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<td><strong>Unit:</strong> Getting to Know Your Students</td>
<td>• Develop class syllabus</td>
</tr>
<tr>
<td><strong>Lesson:</strong> Welcome to Ag</td>
<td>• Develop and Display class rules &amp; procedures</td>
</tr>
<tr>
<td><strong>Estimated Time:</strong> 1-2 days</td>
<td>• Choose icebreaker activities &amp; Gather needed materials</td>
</tr>
<tr>
<td><strong>Objective:</strong> Get to know students and establish class procedures and routines</td>
<td></td>
</tr>
<tr>
<td><strong>Materials Needed:</strong> Syllabus, Classroom Rules &amp; Procedures, Notecards, M&amp;M’s, Other Icebreaker Materials</td>
<td></td>
</tr>
<tr>
<td><strong>Interest Approach:</strong> • Bell Ringer: What was your favorite summer activity? Answer on Post-It note</td>
<td></td>
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<tr>
<td><strong>Content Outline:</strong></td>
<td></td>
</tr>
<tr>
<td>1. Introduce yourself to the students</td>
<td>1. Introduce yourself to the students</td>
</tr>
<tr>
<td>2. Hand out and review class syllabus</td>
<td>2. Hand out and review class syllabus</td>
</tr>
<tr>
<td>3. Explain classroom rules, procedures, and other important information</td>
<td>3. Explain classroom rules, procedures, and other important information</td>
</tr>
<tr>
<td>4. Use icebreaker activities to get to know each student and establish positive relationships</td>
<td>4. Use icebreaker activities to get to know each student and establish positive relationships</td>
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<tr>
<td>Examples-</td>
<td>Examples-</td>
</tr>
<tr>
<td>a. 2 Truths and a Lie</td>
<td>a. 2 Truths and a Lie</td>
</tr>
<tr>
<td>b. M&amp;M Game</td>
<td>b. M&amp;M Game</td>
</tr>
<tr>
<td>c. Snowball</td>
<td>c. Snowball</td>
</tr>
<tr>
<td><strong>Student Activities:</strong></td>
<td></td>
</tr>
<tr>
<td>• Take home syllabus and returned signed by parent/guardian</td>
<td></td>
</tr>
<tr>
<td>• Participate in icebreaker activities</td>
<td></td>
</tr>
<tr>
<td><strong>Formative Assessment:</strong></td>
<td><strong>Summative Assessment:</strong></td>
</tr>
<tr>
<td>• Students should be able to follow and/or perform all classroom procedures</td>
<td>• N/A</td>
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<tr>
<td><strong>Summative Assessment:</strong></td>
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1-Defining Agriculture
1.1 Where would we be without agriculture?

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<th>Course: 8th Grade Agriculture</th>
<th>Interest Approach:</th>
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<tr>
<td>Unit: Defining Agriculture</td>
<td>• Bell ringer-log onto google classroom (post access code on screen)</td>
</tr>
<tr>
<td>Lesson: Where would we be without agriculture?</td>
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</tr>
<tr>
<td>Estimated Time: 1-2 days</td>
<td>Content Outline:</td>
</tr>
<tr>
<td>Objective: Identify how agriculture impacts me on a daily basis</td>
<td>1. Scenario-You and you alone will be leaving for a three day stay at a deserted island. This island does not have any plant or animal life, or safe drinking water</td>
</tr>
<tr>
<td>Materials Needed: iPad, google classroom access code,</td>
<td>2. 5 key terms discussed-</td>
</tr>
<tr>
<td>Teacher Activities:</td>
<td>a. Agriculture-The production of many diverse types of food and fiber, utilizing a variety of methods based on geography, climate, tradition, and availability of resources. Agriculture is the leading industry around the world, and looks different around the world. Agriculture in the US looks different than agriculture in China, just as it is different in California vs. Kansas. But regardless of location or culture, the goal is the same, to feed and cloth all of the people of the word.</td>
</tr>
<tr>
<td>• Review content</td>
<td>b. Food-The diet of people around the world, both direct items like fruits and vegetables, to livestock feed which in turn provides meat for people. Food is similar and different based on region, for example the world’s main crops are universal (wheat, oats, rice, and soybeans) but they are complimented by a variety of other local foods. Some countries like the US produce an abundance of food, and others import much of the food they need</td>
</tr>
<tr>
<td>• Prepare PowerPoint presentation &amp; term posters</td>
<td>c. Fiber-The plant and animal material used to make fabric and clothing. The methods and types have varied through history and culture. Today cotton leads in plant based fiber production, but other plant items are gaining popularity such as soy and hemp. Animal fibers include wool (sheep) and other</td>
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<tr>
<td>• Post activity sheet on google classroom</td>
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</tbody>
</table>
lesson common animals such as camels and alpacas. Cotton did not explode in popularity until the invention of the cotton gin, which made its processing affordable and efficient.

d. Natural Resources-Something, such as a forest, a mineral deposit, or fresh water, that is found in nature and is necessary or useful to humans. Think about the lumber (from trees) your home is built out of, or the paper you’re writing on. Generally, these items exist in limited supply, and should be conserved. Sometimes you will hear the word “renewable” referring to using the natural resource in a sustainable way (only taking what can naturally be replaced. Using the tree/forest example, we generally replant the trees we harvest from the forest so that there will be more for us to use in the future. The US has been blessed with numerous natural resources.

e. World Population-The total number of human beings on our planet. This number is currently ___________ (it goes up so fast we need to check it often for it to be accurate. The words population, though it has peeks and valleys due to good and bad times (disease, famine, etc.) has generally increased slowly over time. It is not until the last 100 years, and more specifically through the green revolution, that the population has grown so dramatically (some would say at an alarming rate). Can our food production keep up with our population growth? The green revolution is the term used to describe the modernization of agriculture including equipment, fertilizers, pesticides, and modern irrigation...these all led to an exponential increase in production.

f. Links:
https://www.census.gov/popclock/
https://www.youtube.com/watch?v=VcSX4ytEfcE
https://www.youtube.com/watch?v=TcDjLDxQebl
<table>
<thead>
<tr>
<th><strong>Formative Assessment:</strong></th>
<th><strong>Summative Assessment:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Students will be able to</td>
<td>• This objective will be assessed on the</td>
</tr>
<tr>
<td>discuss the importance</td>
<td>unit quiz</td>
</tr>
<tr>
<td>of the 5 key terms and</td>
<td></td>
</tr>
<tr>
<td>will demonstrate</td>
<td></td>
</tr>
<tr>
<td>understanding in the</td>
<td></td>
</tr>
<tr>
<td>conclusion questions</td>
<td></td>
</tr>
</tbody>
</table>
Where would we be without agriculture?

Directions: As you rotate around the room, summarize each aspect of agriculture below. Be prepared to share your thoughts with the class.

1. Agriculture
2. Food
3. Fiber
4. Natural Resources
5. World Population

Conclusion Questions:
1. How does food impact me on a daily basis?
2. How does fiber impact me on a daily basis?
3. Why is the world population important to people in agriculture?
### 1-Defining Agriculture

**1.2 A tent off the pathway**

<table>
<thead>
<tr>
<th>Course:</th>
<th>8th Grade Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit:</td>
<td>Defining Agriculture</td>
</tr>
<tr>
<td>Lesson:</td>
<td>A tent off the pathway</td>
</tr>
<tr>
<td>Estimated Time:</td>
<td>3 days</td>
</tr>
<tr>
<td>Objective:</td>
<td>Explain the diversity of the agriculture industry</td>
</tr>
<tr>
<td>Materials Needed:</td>
<td>PowerPoint, iPads, activity sheet, projector, internet</td>
</tr>
</tbody>
</table>

### Interest Approach:
- Google classroom-What are 2 things you use every day that come from agriculture?

### Content Outline:
1. Pathway-A field or area of study within the agriculture industry
2. Ornamental Horticulture-The cultivation of plants for aesthetic purposes; includes indoor and outdoor plants and landscaping, and the floral industry
3. Ag Mechanics-The construction, design, and operation of agricultural equipment, structures, and facilities
4. Animal Science-The care, production, and processing of animals for food and their byproducts
5. Plant Science-Includes all the careers related to plant production, research, biotechnology, plant hybridization
6. Ag Business-Generally concerned with the fiscal/financial aspect of agriculture; may include ag service businesses, ag finance, sales and marketing, and trade
7. Forestry-The care and management of our public and private forests; may include urban tree and forest management careers

### Teacher Activities:
- Review content
- Prepare PowerPoint & activity sheet
- Guide and assist students while making collages

### Student Activities:
- Create a collage of their selected pathway
- Present collage to their classmates

### Formative Assessment:
- Students will demonstrate knowledge of their pathway through their collage and presentation

### Summative Assessment:
- This objective will also be assessed on the unit test
A tent off the pathway

You will create a collage of the pathway you selected. Be sure to include the following information on your pathway collage:

*your collage can be made by hand or made on your iPad

- Title
- Definition of pathway
- 5 careers in this pathway
  - Brief description of each career
- Include at least 3 pictures of careers in your pathway
- 2 colleges that offer programs in your pathway
- Fun Facts

Grading Rubric:

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Score</th>
<th>Points Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Representative:</strong> Collage represents selected pathway and includes information listed above</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Neatness:</strong> Collage is organized with minimal grammatical errors</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Creative:</strong> Shape, special effects, 3-D, etc. utilized</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

Teacher Comments:
# Defining Agriculture

## 1.3 Career profile

<table>
<thead>
<tr>
<th>Course:</th>
<th>8&lt;sup&gt;th&lt;/sup&gt; Grade Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit:</td>
<td>Defining Agriculture</td>
</tr>
<tr>
<td>Lesson:</td>
<td>Career Profile</td>
</tr>
<tr>
<td>Estimated Time:</td>
<td>1-2 days</td>
</tr>
<tr>
<td>Objective:</td>
<td>Identify and explain one career in the agriculture industry</td>
</tr>
<tr>
<td>Materials Needed:</td>
<td>student iPads, activity sheet</td>
</tr>
</tbody>
</table>

**Teacher Activities:**
- Review Content
- Make a temple for students to follow (if desired)
- Post activity on google classroom

**Student Activities:**
- Create a mock Facebook page of the career selected

**Interest Approach:**
- What is the most important tactic to recall about the pathway you presented yesterday? Write it on the front whiteboard!

**Content Outline:**
1. Discuss what students wrote on the board and review yesterday’s pathway presentations
2. Students will select one agriculture related career to do more research on
3. The career does not have to originate from their pathway in the previous lesson
4. A gallery walk may be utilized for students to display their work

**Formative Assessment:**
- Students will be assessed on the mock Facebook page they create

**Summative Assessment:**
- These objectives may be assessed on the end of unit quiz
Career Profile

Directions: You will be creating a mock Facebook profile of the career you selected. Below I have provided some point to guide you in creating your profile.

1. Select a career related to agriculture that was mentioned yesterday in our presentations that interests you (does not have to be one you researched)
2. Answer the bullet points below regarding your career
   1. Name/Title
   2. About Section
      1. Education required for the career (high school, college, trade school, etc.)
      2. Average career salary (how much money can you make in this career?)
      3. Daily responsibilities (what does someone with this job do every day?)
      4. Benefits/Advantages of the career
      5. Disadvantages of the career
3. 2 pictures of someone in the career

Grading Rubric:

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Score</th>
<th>Points Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Representative: Profile represents selected career and includes information listed above</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Neatness: Profile is organized with minimal grammatical errors</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Creative: Shape, special effects, 3-D, etc. utilized effectively</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

Teacher Comments:
1-Defining Agriculture
1.4 Ag’s economic impact

**Course:** 8th Grade Agriculture  
**Unit:** Defining Agriculture  
**Lesson:** Ag’s economic impact  
**Estimated Time:** 3 days  
**Objective:** Explain how agriculture impacts the economy on a local through global level  
**Materials Needed:** student iPads, activity sheet, game show questions and answers

**Teacher Activities:**  
- Review Content  
- Example radio broadcast ready  
- Prepare game show and economy questions  
- Update statistics if needed

**Student Activities:**  
- Answer questions related to different levels of the agriculture economy  
- Create a radio/news broadcast sharing the information from their research

**Interest Approach:**  
- Students should discuss with their table partner how much they think the average person spends on food each year.

**Content Outline:**  
**Game show questions:**  
How many people does the average farmer feed? 165  
1. In Pakistan, people spend 50% of their income on food. In China it is 32%. Japan is 14%. What percentage of their income does the average U.S. consumer spend on food? 13.1%  
2. Agricultural producers in the U.S. produce a lot of food. How many pounds do they produce annually? 2,207,504,580,000 pounds!  
3. Every dollar you spend on food pays several people. It pays the farmer, the processor, the wholesaler, and so forth. For each dollar you spend on food, how much of it goes to the farmer? 7.8 cents  
4. The U.S. exports nearly $160 billion worth of agriculture products to other countries. List the top five countries that spent the most in U.S. ag products. Canada, China, Mexico, European Union, Japan

**Agriculture economy questions:**  
5. State  
- What are the top five commodities produced in your state and how do they rank in the U.S.?  
- What food and meat products are popular in your state?
What similarity is there between the types of commodities produced and the popular food products in your state? Why are they similar?

6. Country
- What are the top five commodities produced in your county and how do they rank in your state?
- What areas of your county produce more agricultural commodities?
- Name at least 10 agribusinesses in your county.
- What is the Cooperative Extension Service and how does it serve your county?

7. World
- What are the top 10 countries that the U.S. exports agricultural products to?
- What are the top 10 countries that the U.S. imports agricultural products from?
- How many of these countries are similar?
- If there are a large number of similar countries, how does that affect our agricultural trade?

Formative Assessment:
- Students will be assessed on the final radio broadcast product

Summative Assessment:
- This objective will be assessed on the unit quiz

Sources:
2. https://www.fb.org/newsroom/fast-facts


Ag’s Economic Impact

Directions: In your groups, answer the questions related to the level of agriculture you selected. Once you have answered the questions, create a script for your radio or news broadcast. A timeline has been provided below to help keep you on track.

Timeline:
Day 1 - research and script
Day 2 - record and edit broadcast
Day 3 - final edits and share broadcasts

Agriculture in Your World
• What are the top 5 countries that the U.S. exports agricultural products to?
• What are the top 5 countries that the U.S. imports agricultural products from?
• How many of these countries are similar?
• If there are a large number of similar countries, how does that affect our agricultural trade?

Agriculture in Your State
• What are the top five commodities produced in your state and how do they rank in the U.S.?
• What food and meat products are popular in your state?
• What similarity is there between the types of commodities produced and the popular food products in your state? Why are they similar?

Agriculture in your Country
• How many people are employed by agriculture in the U.S.?
• How large is the USDA budget and how does the USDA spend that money?
• How much money do people spend on meat and other food items?
• If you were to spend $1 on an item of food, how much of that pays for the farmer, wholesaler, retailer, etc?
### Grading Rubric

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Score</th>
<th>Points Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Representative: Broadcast accurately represents the selected level of agriculture and answers the appropriate questions</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Neatness: Broadcast is well edited and easy to watch and/or follow</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Creative: Broadcast is interesting and uses enhanced features</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

**Teacher Comments**
1-Defining Agriculture Test

Name: _______________________________________

LT #1 I can explain how agriculture supports all life.

Match the correct definition with the correct term.

A. Agriculture  
B. Food  
C. Fiber  
D. Natural Resources  
E. World Population

1. _______ The number of total humans living on the planet
2. _______ Diet of humans
3. _______ Material used either from plants or animals to make fabric or clothing
4. _______ Production of Food and fiber
5. _______ The natural existing source of raw materials for life and beauty in the environment

6. How does agriculture impact me on a daily basis? **Answer in complete sentences.**

7. A ____________________________ is a field or area of study within the agriculture industry.

Match the correct pathways with the correct definition

A. Animal Science  
B. Plant Science  
C. Forestry  
D. Ornamental Horticulture  
E. Agriculture Mechanics  
F. Agricultural Business

8. _______ The construction, design, and operation of agricultural equipment, structures, and facilities
9. The cultivation of plants for aesthetic purposes; includes indoor and outdoor plants and landscaping the floral industry.

10. The care, production, and processing of animals for food and their byproducts.

11. Generally concerned with the fiscal/financial aspect of agriculture and may include ag service business, ag finance, sales, and marketing and trade.

12. The care and management of our public and private forests; may include urban tree and forest management careers.

13. Includes all the careers related to plant production, research biotechnology, plant hybridization


15. How many people does the average farmer feed?
   a. 50
   b. 165
   c. 200
   d. 20

16. How large is the USDA budget?
   a. 155 billion
   b. 150 million
   c. 255 billion
   d. 250 million

17. Every dollar you spend on food pays several people. It pays the farmer, the processor, the wholesaler, and so forth. For each dollar you spend on food, how much of it goes to the farmer?
   a. 50 cents
   b. 15 cents
   c. 7.8 cents
   d. 1.3 cents

18. What percentage of their income does the average U.S. consumer spend on food?
   a. 30.5%
b. 13.1%
c. 5.4%
d. 90.4%

19. Why doesn’t the whole dollar spent on food go to the producer? **Answer in complete sentences.**

20. How have your thoughts or understanding of agriculture changed since the beginning of this class? If not, why? **Answer in complete sentences.**
1-Defining Agriculture Test Answer Key

Name: _______________________________________

LT #1 I can explain how agriculture supports all life.

Match the correct definition with the correct term.

F. Agriculture  
G. Food  
H. Fiber  
I. Natural Resources  
J. World Population

1. E The number of total humans living on the planet
2. B Diet of humans
3. C Material used either from plants or animals to make fabric or clothing
4. A Production of Food and fiber
5. D The natural existing source of raw materials for life and beauty in the environment

6. How does agriculture impact me on a daily basis? Answer in complete sentences.  

Answers will vary.

7. A pathway is a field or area of study within the agriculture industry.

Match the correct pathways with the correct definition

A. Animal Science  
B. Plant Science  
C. Forestry  
D. Ornamental Horticulture  
E. Agriculture Mechanics  
F. Agricultural Business
8. E  The construction, design, and operation of agricultural equipment, structures, and facilities

9. D  The cultivation of plants for aesthetic purposes; includes indoor and outdoor plants and landscaping the floral industry.

10. A  The care, production, and processing of animals for food and their byproducts.

11. F  Generally concerned with the fiscal/financial aspect of agriculture and may include ag service business, ag finance, sales, and marketing and trade.

12. C  The care and management of our public and private forests; may include urban tree and forest management careers.

13. B  Includes all the careers related to plant production, research biotechnology, plant hybridization

14. Is one agricultural pathway more important than another? Why or why not? **Answer in complete sentences.**

   Answers will vary.

15. How many people does the average farmer feed?
   e. 50
   f. 165
   g. 200
   h. 20

16. How large is the USDA budget?
   e. 155 billion
   f. 150 million
   g. 255 billion
   h. 250 million

17. Every dollar you spend on food pays several people. It pays the farmer, the processor, the wholesaler, and so forth. For each dollar you spend on food, how much of it goes to the farmer?
   e. 50 cents
   f. 15 cents
   g. 7.8 cents
   h. 1.3 cents
18. What percentage of their income does the average U.S. consumer spend on food?

- e. 30.5%
- f. 13.1%
- g. 5.4%
- h. 90.4%

19. Why doesn’t the whole dollar spent on food go to the producer? **Answer in complete sentences.**

**Answers will vary**

20. How have your thoughts or understanding of agriculture changed since the beginning of this class? If not, why? **Answer in complete sentences.**

**Answers will vary**
Agriculture
Perceptions
### 2-Agriculture Perceptions
#### 2.1 Perception vs. Reality

**Course:** 8th Grade Agriculture  
**Unit:** Agriculture perceptions  
**Lesson:** Perception vs. Reality  
**Estimated Time:** 1 day  
**Objective:** Analyze common agriculture perceptions and differentiate between perception and reality  
**Materials Needed:** FFA statistics, PowerPoint, activity sheet, student iPad

<table>
<thead>
<tr>
<th>Teacher Activities:</th>
<th>Student Activities:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Review Content</td>
<td>• Participate in discussions</td>
</tr>
<tr>
<td>• Prepare PowerPoint</td>
<td>• Go-get-it moment to complete activity sheet</td>
</tr>
<tr>
<td>• Prepare/Update activity sheet statistics</td>
<td></td>
</tr>
<tr>
<td>• Post materials on google classroom</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interest Approach:</th>
<th>Content Outline:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• What is the best kind of music to listen to?</td>
<td>1. Perception-the result of an observation or mental image</td>
</tr>
</tbody>
</table>
| • What is the best color? | 2. FFA mission focuses on 3 things  
- Premier leadership  
- Personal growth  
- Career success |
| • What is the best class in our school? | 3. Student members in FFA- 649,355 |
| | 4. Female 32%, Male 41% |
| | 5. Middle school 5%, High School 74%, College 4% |
| | 6. White 41%, Hispanic/Latino of any race 13%, Black, Non-Hispanic 3%  
American Indian 1%, Asian Native Hawaiian or Pacific Islander 1%, Two or more races 1% |
| | 7. Top 6 states- 115,630 Texas, 83,917 California, 40,881 Georgia, 27,205 Oklahoma, 25,806 Ohio, 25,784 Missouri |
| | 8. FFA members earn $4 billion annually through hands-on work experiences |
| | 9. Three ways we come up with our perceptions  
- People  
- Media  
- Experiences |
**Formative Assessment:**
- Students will be assessed through their discussion participation as well as their activity sheet completion

**Summative Assessment:**
- These objectives will be assessed on the end of unit quiz

Sources:
https://www.ffa.org/SiteCollectionDocuments/media_ffafactsheet.pdf
FFA Fact Sheet Questions

1. What 3 things does the FFA mission focus on?

2. How many student members are in FFA?

3. ______ percent of FFA members are female and ______ percent are male.

4. ______ % of members are in middle school, ______ % are in high school, and ______ % are in college.

5. ______ % of members are white/non-hispanic, ______ % are non disclosed.

6. How many career development events does the FFA offer?

7. List the top 6 FFA membership states and the number of members each state has.
   1. 
   2. 
   3. 
   4. 
   5. 

8. How much do FFA member earn annually through hands-on work experiences?
## 2-Agriculture Perceptions
### 2.2 Characteristics of Agriculturists

<table>
<thead>
<tr>
<th>Course:</th>
<th>8th Grade Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit:</td>
<td>Agriculture perceptions</td>
</tr>
<tr>
<td>Lesson:</td>
<td>Characteristics of Agriculturists</td>
</tr>
<tr>
<td>Estimated Time:</td>
<td>1 day</td>
</tr>
<tr>
<td>Objective:</td>
<td>Identify three common characteristics of agriculturists</td>
</tr>
<tr>
<td>Materials Needed:</td>
<td>student iPads, activity sheet, answer key, video</td>
</tr>
</tbody>
</table>

### Interest Approach:
- [https://www.youtube.com/watch?v=-p3BZwJ4xt0](https://www.youtube.com/watch?v=-p3BZwJ4xt0)
- Watch the video and follow up with a brief discussion about what will be covered in class

### Content Outline:
1. Agriculturists—a person who raises living organisms for food or raw materials
2. There are approximately 3.2 million agriculturists in the US today
3. The average age of an agriculturist is 56
4. There are 969,672 women agriculturists
5. There are 44,629 African American agriculturists
6. 56% of agriculturists have another primary occupation
7. 6% of agriculturists are under 35 years old

### Teacher Activities:
- Review Content
- Upload activity sheet to google classroom
- Prepare 4 corners activity
- Update statistics if necessary

### Student Activities:
- Answer questions
- Participate in 4 corners activity

### Formative Assessment:
- Students will be assessed through class discussion and participation

### Summative Assessment:
- This objective will be assessed on the unit quiz

### Sources:
- [https://www.agcensus.usda.gov/Publications/2012/Online_Resources/Highlights/Farm_Demographics/](https://www.agcensus.usda.gov/Publications/2012/Online_Resources/Highlights/Farm_Demographics/)


Characteristics of Agriculturists

1. Define agriculturist-

2. There are approximately ____________ agriculturalists in the United States today.
   a. 3.2 million
   b. 5 million
   c. 1.5 million
   d. 2 million

3. The average age of an agriculturists is ____________.
   a. 47
   b. 25
   c. 56
   d. 52

4. There are ____________ women agriculturists.
   a. 152
   b. 306,209
   c. 150,345
   d. 969,672

5. There are ____________ African American agriculturists.
   a. 35,000
   b. 44,629
   c. 1,902
   d. 13,293

6. ____________ % of agriculturists have another primary occupation (job).
   a. 56
   b. 12
   c. 26
   d. 44

7. ____________ % of agriculturists are under 35 years old.
   a. 50
   b. 34
   c. 13
   d. 6

8. ____________ has the most farms in the US.
   a. Missouri
   b. California
   c. Oklahoma
   d. Texas
Characteristics of Agriculturists Answer Key

1. Define agriculturist-A person who raises living organisms for food or raw materials

2. There are approximately ____________ agriculturalists in the United States today.
   - e. 3.2 million
   - f. 5 million
   - g. 1.5 million
   - h. 2 million

3. The average age of an agriculturists is ____________.
   - i. 47
   - j. 25
   - k. 56
   - l. 52

4. There are ____________ women agriculturists.
   - a. 152
   - b. 306,209
   - c. 150,345
   - d. 969,672

5. There are ____________ African American agriculturists.
   - a. 35,000
   - b. 44,629
   - c. 1,983
   - d. 13,893

6. ____________ % of agriculturists have another primary occupation (job).
   - a. 56
   - b. 12
   - c. 26
   - d. 44

7. ____________ % of agriculturists are under 35 years old.
   - a. 50
   - b. 34
   - c. 13
   - d. 6

8. ____________ has the most farms in the US.
   - a. Missouri
   - b. California
   - c. Oklahoma
   - d. Texas
### Interest Approach:
- Walk students through a visual representation of going to their favorite restaurant and receiving food that is spoiled. Explain to students that we have standard practices to help ensure we receive the same thing each time we eat at our favorite restaurant.

### Content Outline:
1. Standard agriculture practices
   - Why do we keep pigs in stalls?
   - Why do we keep chickens in cages?
   - Why do we dehorn cattle?
   - Why do we produce animals on large scale operations?
   - Why do we brand animals?
   - Why do we use chemicals on food?
2. Extension activity-depending on student interest, more discussion/activities can be used to discuss other agriculture production myths such as GMO’s

### Teacher Activities:
- Review Content
- Prepare PowerPoint or informational flyers
- Assist students in presenting information
- Update standard practices as needed

### Student Activities:
- Create a visual aid describing your standard agriculture practice
- Explain whether you agree or disagree with the practice

### Formative Assessment:
- Student visual aids and presentations will be assessed

### Summative Assessment:
- This objective will be assessed on the unit quiz

Sources:
https://www.ffa.org/myresourcedocuments/MS.IAS.5.3.pdf
Myths About Food Production

1. Read about your assigned myth from the slideshow Miss Sunderman provides.
   a. DO NOT google your topic to find information—use the information provided.

2. Select 5 pieces of information you think is important to know about your topic.

3. Create a flyer/poster with the following information:
   a. A title for your poster
   b. At least 2 pictures
   c. 5 important pieces of information about your topic
   d. Whether you agree or not with the practice and why

Your poster may be on paper or on your iPad. If you choose to use your iPad, use one of the following resources below:

https://www.postermywall.com/
https://www.smore.com/app
Jamboard
https://www.canva.com/
Google Drawing
https://blog.befunky.com/design-templates/
https://create.piktochart.com/dashboard

Grading Rubric

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Score</th>
<th>Points Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Representative: Visual aid accurately represents the agriculture practice and includes the appropriate information</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Neatness: Visual aid is well organized with minimal grammatical errors</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Creative: Visual aid is visually appealing and utilizes creative measures</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

Teacher Comments
Standard Agricultural Practices

1. **Why do we keep pigs in stalls?**
   Some may believe that keeping animals in a cage, stall, or other confined space is cruel. Let’s take a look at this standard industry practice to understand some reasons that farmers keep gilts and sows in stalls.

   One practice that some farmers may implement is placing pregnant gilts or sows in stalls. There are many benefits of using stalls. First, there is much less labor involved in caring for the pig. It provides a much safer environment for a handler working with the animal in the event that she needs medical treatment. Also, farmers are able to control the temperature in the stalls by using heated mats or heating lamps for newborn piglets. Finally, they can help control the problem of sows crushing piglets when the sow rolls over because the stalls have areas separated by bars to provide piglets their own area.

2. **Why do we keep chickens in cages?**
   Some may believe that keeping animals in a cage, crate, or other confined space is cruel. Let’s take a look at this standard industry practice to see some reason that farmers keep chickens in cages.

   Chicken is a very common meat that consumers enjoy each year. On average, each person in the United States will eat over 75 pounds of chicken each year. We also use chickens for their eggs, feathers, and even medicines. The demand for chickens and their products is high. Therefore, the chicken industry needed to create a way to safely and humanely produce enough chickens to meet the demands of consumers.

   One of those ways is keeping layers (hens that lay eggs) in cages. Broiler chickens, or those grown for meat, are kept in environmentally controlled buildings but not in cages. The hens that lay the eggs are kept in cages for many reasons. First, it makes collecting those eggs much easier. Most producers use an automatic egg-collecting system that reduces labor. This is also helpful to make sure that the eggs do not get damaged or cracked by the hens. Automated feeding and watering systems are also easily used with these layers. These specially designed cages help one hen produce around 300 eggs each year.

3. **Why do we dehorn cattle?**
   Many people believe that some of the practices that farmers use with their animals are inhumane. Let’s take a look at the standard industry practice to see some reasons that producers dehorn their cattle.

   Beef is a very common meat that consumers enjoy each year. On average, each person in the United States will eat over 65 pounds of beef each year. There are other products
we get from cattle such as using their hides for leather and even their hair in paintbrushes. Producers help get these products to us by performing standard industry practices on their cattle.

One practice that beef producers perform on their cattle is dehorning. Some breeds of cattle have horns and dehorning is the removal of those horns. The main reason this is done is to prevent the cattle from hurting other cattle with their horns. It is also much safer for people to work with these cattle if they do not have to worry about being injured by horns.

Usually the process is performed on young calves because it can be traumatic to the animal if performed on an animal that is too old. The process is simple. A producer will place a caustic chemical on the area where the horns grow. This chemical prevents the tissue from growing. Other times the horns are sawed or clipped off.

4. Why do we produce animals on large scale operations?
Many people believe that the family farm has disappeared! This is simply untrue. The truth is that the family farm has grown larger in order to produce food to feed the growing population, and that 98% of all farms are still family owned. To add to this, 82% of all agriculture products sold comes from these family farms.

Why do we produce animals on large-scaled operations? They are designed to help the farmer produce livestock more efficiently. This means fewer people are needed to feed and manage these animals without sacrificing proper care and attention to each animal on a daily basis. Many large-scaled operations take advantage of automatic feeding and watering. Even given the efficiencies gained by large-scale production, a farm isn’t like an assembly line. Each animal is different and requires individual care from time to time. These farms employ many people who care about producing food. Also, environmental factors, such as temperature and humidity, can be controlled more easily. These operations are designed so that the animals are as comfortable as possible, and therefore, as profitable as possible. Without these larger-scaled operations it might not be possible to produce enough products to meet consumer demand. Also, the prices of many products would increase since less food would be available. Lastly, the consistency and quality of products could be negatively affected.

5. Why do we use chemicals on food?
Many people believe that using chemicals on our food supply is wrong and harmful in many ways. Although there are some downfalls to using pesticides and other chemicals, consumers should not be worried about being harmed if these chemicals are used properly.

There are many advantages to using chemicals. They help eliminate pests, such as weeds, insects, and diseases. They can also provide nutrients that our crops need, in the form of fertilizers. To add to this, they make it possible to produce higher quantities of food for consumers.
There are government agencies, such as the Environmental Protection Agency (EPA), that help make sure that only approved chemicals are used on our food. This helps ensure that chemicals do not contaminate our environment or harm people who eat the food. Chemicals make it possible for you to enjoy food that is good for your body and free of unwanted pests or diseases.

6. Why do we brand animals?
Many people believe that some of the practices that farmers use with their animals are inhumane. Let’s take a look at the standard industry practice to see some reasons that producers brand their cattle.

Beef is a very common meat that consumers enjoy each year. On average, each person in the United States will eat over 65 pounds of beef each year. There are other products we utilize from cattle, such as using their hides for leather and hair in paintbrushes. Producers help get these products to us by performing standard industry practices on their cattle.

One practice that beef producers perform on their cattle is branding. This is done mainly to help identify their cattle and claim ownership over their cattle. Each producer selects a unique brand and then has it registered with a state agency. Since no two brands are alike, it makes it very simple to identify the owner of the cattle.

There are two methods that are commonly used. They are hot iron and freeze branding. The hot iron method burns the skin and doesn’t allow hair to grow back. However, the freeze branding uses liquid nitrogen and does allow the hair to grow back. The liquid nitrogen causes loss in skin pigmentation and therefore the hair grows back white.
2-Agriculture Perceptions Test

Test 2-Agricultural Perceptions

Name: ______________________________

LT #2 I can analyze common agriculture perceptions.

True or False. Write out the word True or False on the line by the statement.

_______ 1. Your perceptions of different things are always correct.

_______ 2. Reality means the quality or state of being real.

_______ 3. FFA stands for Future Farmers of America.

_______ 4. What we hear from our friends and families is one way we form our perceptions.

_______ 5. Agriculture is not in urban parts of our world.

_______ 6. An agriculturalist is a person who raises living organisms for food or raw materials.

_______ 7. All agriculturalists are male.

_______ 8. African Americans and people of Hispanic origin can be in agriculture.

_______ 9. The average agriculturalist is 20 years old.

Directions: Using the word bank provided, write in the correct term to complete the sentence.

**Word Bank:**

- branding
- family farm operations
- calves
- horns
- pig
- stalls

10. 98% percent of all farms are ____________________.

12. Dehorning removes the ____________ from ____________.

13. A sow is a female ____________ that has reproduced.

14. ________________ allow gilts and sows to be housed in an environmentally controlled, easily managed area.
15. _________________ is a way to identify animals.

Answer the following questions in complete sentences.

16. Out of the six agricultural practices covered in class, which do you think is most important and why? Six practices discussed (branding, dehorning, large scale operations, chickens in cages, pigs in stalls, chemicals on food)

17. How is our *perceptions* of agriculture different from the *reality* of agriculture? (be sure to discuss the perception and reality of agriculture, not just the difference between perception and reality).
2-Agriculture Perceptions Test Answer Key

Test 2-Agricultural Perceptions

Name: _________________________

LT #2 I can analyze common agriculture perceptions.

True or False. Write out the word True or False on the line by the statement.

False 1. Your perceptions of different things are always correct.

True 2. Reality means the quality or state of being real.

False 3. FFA stands for Future Farmers of America.

True 4. What we hear from our friends and families is one way we form our perceptions.

False 5. Agriculture is not in urban parts of our world.

True 6. An agriculturalist is a person who raises living organisms for food or raw materials.

False 7. All agriculturalists are male.

True 8. African Americans and people of Hispanic origin can be in agriculture.

False 9. The average agriculturalist is 20 years old.

Directions: Using the word bank provided, write in the correct term to complete the sentence.

Word Bank:

- branding
- family farm operations
- calves
- horns
- pig
- stalls

10. 98% percent of all farms are family farm operations

12. Dehorning removes the horns from calves

13. A sow is a female pig that has reproduced.

14. Stalls allow gilts and sows to be housed in an environmentally controlled, easily managed area.
15. **Branding** is a way to identify animals.

Answer the following questions in complete sentences.

16. Out of the six agricultural practices covered in class, which do you think is most important and why? Six practices discussed (branding, dehorning, large scale operations, chickens in cages, pigs in stalls, chemicals on food)

   **Answers will vary**

17. How is our *perceptions* of agriculture different from the *reality* of agriculture? (be sure to discuss the perception and reality of agriculture, not just the difference between perception and reality).

   **Answers will vary**
Agriculture Products
### 3-Agriculture Products
#### 3.1 Our nation’s commodities

<table>
<thead>
<tr>
<th>Course: 8th Grade Agriculture</th>
<th>Interest Approach:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: Agriculture Products</td>
<td>• Have students make a list of all the food they ate within the last 24 hours</td>
</tr>
<tr>
<td>Lesson: Our Nations Commodities</td>
<td>• Then have students break those foods down into the individual ingredients those foods are derived from</td>
</tr>
<tr>
<td>Estimated Time: 1 day</td>
<td>• Discuss how the product is different from the commodity</td>
</tr>
<tr>
<td>Objective: Identify local, state, and national agriculture commodities</td>
<td></td>
</tr>
</tbody>
</table>

**Materials Needed:** student iPad, activity sheet

<table>
<thead>
<tr>
<th>Teacher Activities:</th>
<th>Content Outline:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Review Content</td>
<td>1. Product-results from an agricultural process and is ready to be consumed</td>
</tr>
<tr>
<td>• Update facts/statistics</td>
<td>2. Commodity- raw agricultural good</td>
</tr>
<tr>
<td>• Prepare activity sheet</td>
<td>3. Have students play a game of Pictionary to identify the top locally grown commodities-After students identify the commodity provide them with the value and fact</td>
</tr>
<tr>
<td>• Facilitate discussions</td>
<td>4. For the state and national commodities, have students pair up, identify one partner as A (state) and one as B (nation)</td>
</tr>
</tbody>
</table>

| Student Activities: | 5. Have the A’s group together and the B’s group together-provide each group with the respective commodity information |
|---------------------| 6. Each group will discuss and complete the chart for their level and then partners will pair back up and teach their partner what they learned |
| • Participate in discussions |  
| • Complete activity sheet |  

<table>
<thead>
<tr>
<th>Formative Assessment:</th>
<th>Summative Assessment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Students will be assessed on their activity sheet completion</td>
<td>• This objective will be assessed on the end of unit quiz</td>
</tr>
</tbody>
</table>

Sources:
https://www.ers.usda.gov/StateFacts/
## Commodity vs. Product

Locally grown commodities (Taylor county):

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Value</th>
<th>Fact</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

Top 5 state commodities:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tbody>
</table>

Top 5 national commodities:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
Commodity vs. Product Answer Key

Locally grown commodities (Taylor county):

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Value</th>
<th>Fact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybeans</td>
<td>84,250</td>
<td>One acre of soybeans can product 82,368 crayons</td>
</tr>
<tr>
<td>Corn</td>
<td>79,980</td>
<td>Corn is grown in every continent except Antarctica</td>
</tr>
<tr>
<td>Hay</td>
<td>13,641</td>
<td>2016 $294,915,000 produced in Iowa</td>
</tr>
<tr>
<td>Broilers</td>
<td>350,050</td>
<td>Americans consume more chicken than anyone else in the world</td>
</tr>
<tr>
<td>Hogs and Pigs</td>
<td>76,920</td>
<td>Pigs can run up to 11 MPH</td>
</tr>
<tr>
<td>Cattle and Calves</td>
<td>28,559</td>
<td>Iowa is 4th in the nation in cattle production</td>
</tr>
</tbody>
</table>

Top 5 state commodities:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>8,516,879</td>
</tr>
<tr>
<td>Hogs</td>
<td>6,351,049</td>
</tr>
<tr>
<td>Soybeans</td>
<td>5,970,070</td>
</tr>
<tr>
<td>Cattle and Calves</td>
<td>3,858,669</td>
</tr>
<tr>
<td>Dairy Products, Milk</td>
<td>833,154</td>
</tr>
</tbody>
</table>

Top 5 national commodities:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle and Calves</td>
<td>63,944,678</td>
</tr>
<tr>
<td>Corn</td>
<td>46,885,71</td>
</tr>
<tr>
<td>Soybeans</td>
<td>42,008,036</td>
</tr>
<tr>
<td>Dairy Products, Milk</td>
<td>34,543,067</td>
</tr>
<tr>
<td>Broilers</td>
<td>25,935,852</td>
</tr>
</tbody>
</table>
### 3-Agriculture Products

#### 3.2 Corn lab

<table>
<thead>
<tr>
<th>Course:</th>
<th>8th Grade Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit:</td>
<td>Agriculture Products</td>
</tr>
<tr>
<td>Lesson:</td>
<td>Biodegradable Plastic</td>
</tr>
<tr>
<td>Estimated Time:</td>
<td>1 day</td>
</tr>
</tbody>
</table>

**Objective:** Construct biodegradable plastic and identify the importance of corn in everyday items

**Materials Needed:** Cornstarch, activity sheet, paper cup or plastic bag, oil, water, microwave, food coloring (optional)

**Teacher Activities:**
- Gather materials for lab activity
- Review lab procedures

**Scientific Observations:**
- Part 1
  1. What do you notice about your biodegradable plastic?
  2. Is your biodegradable plastic the same as other students’ plastic?
  3. What could you make with this biodegradable plastic if you let it harden?
- Part 2
  1. What happens to your plastic?
  2. Form your plastic into a ball and describe what you see.
  3. What are 2 things that could be made from corn plastic in the future?

**Interest Approach:**
- Have students discuss in pairs what the term “biodegradable” means. Can they name any items that are biodegradable?

**Lab Instructions:**
1. Place a tablespoon of cornstarch in a paper cup or plastic bag
2. Add two drops of corn oil to the cornstarch
3. Add a tablespoon of water to the oil and cornstarch
4. Stir the mixture
5. Add two drops of your favorite food coloring to the mixture and stir well
6. Part 1 Scientific Observations
7. Microwave your biodegradable plastic for 20-25 seconds on high
8. Part 2 Scientific Observations

**Formative Assessment:**
- Students will be assessed on their lab participation and observation question completion

**Summative Assessment:**
- This objective will be assessed on the end of unit quiz

**Sources:**
Biodegradable Corn Plastic

1. Place a tablespoon of cornstarch in a paper cup or plastic bag
2. Add two drops of corn oil to the cornstarch
3. Add a tablespoon of water to the oil and cornstarch
4. Stir the mixture
5. Add two drops of your favorite food coloring to the mixture and stir well
6. Part 1 Scientific Observations

7. Microwave your biodegradable plastic for 20-25 seconds on high
8. Part 2 Scientific Observations
Corn Plastic Lab Questions

Part 1:
1. What do you notice about your biodegradable plastic?

2. Is your biodegradable plastic the same as other students’ plastic?

3. What could you make with this biodegradable plastic if you let it harden?

Part 2:
1. What happens to your plastic?

2. Form your plastic into a ball and describe what you see?

3. What are 2 things that could be made from corn plastic in the future?
### 3-Agriculture Products
### 3.3 Ice cream in a bag

<table>
<thead>
<tr>
<th>Course:</th>
<th>8th Grade Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit:</td>
<td>Agriculture Products</td>
</tr>
<tr>
<td>Lesson:</td>
<td>Ice Cream in a Bag</td>
</tr>
<tr>
<td>Estimated Time:</td>
<td>1 Day</td>
</tr>
</tbody>
</table>

**Objective:** Create ice cream in a bag from agriculture commodities

**Materials Needed:** quart size plastic bags, gallon plastic bags, spoons, measuring cups, half and half, sugar, vanilla, rock salt, ice cubes, paper towels, ice cream toppings (optional)

**Teacher Activities:**
- Review lab procedures
- Gather necessary materials

**Lab Instructions:**
1. In the small plastic bag place 1 cup of half and half, 2 tablespoons of sugar, and ½ teaspoon of vanilla
2. Seal the bag and mix ingredients
3. Fill gallon size bag roughly half full of ice, add ½ cup of rock salt
4. Put the sealed small bag into the gallon ice bag, seal the gallon bag
5. SHAKE! Shake the mixture for roughly 15-20 minutes until it hardens
6. Top with your favorite items and ENJOY!

**Scientific Observations/Questions:**
1. Identify the 3 commodities our ice cream was derived from.
2. What is the freezing point of water?
3. What did the mixture look like after 5 minutes of shaking?
4. What happened to the ice cubes?
5. Why do we add salt to the ice?

**Formative Assessment:**
- Students will be assessed on their scientific observation completion

**Summative Assessment:**
- This objective will be assessed on the unit quiz

**Sources:**
**Ice Cream in a Bag**

1. In the small plastic bag place 1 cup of half and half, 2 tablespoons of sugar, and ½ teaspoon of vanilla

2. Seal the bag and mix ingredients

3. Fill gallon size bag roughly half full of ice, add ½ cup of rock salt

4. Put the sealed small bag into the gallon ice bag, seal the gallon bag

5. SHAKE! Shake the mixture for roughly 15-20 minutes until it hardens

6. Top with your favorite items and ENJOY!
Ice Cream in a Bag Questions

1. Identify the 3 commodities our ice cream was derived from.

2. What is the freezing point of water?

3. What did the mixture look like after 5 minutes of shaking?

4. What happened to the ice cubes?

5. Why do we add salt to the ice?
### 3-Agriculture Products
#### 3.4 Import vs. Export

| **Course:** | 8th Grade Agriculture |
| **Unit:** | Agriculture Products |
| **Lesson:** | Imports vs. Exports |
| **Estimated Time:** | 1 day |
| **Objective:** | Compare and identify import and export countries and products |
| **Materials Needed:** | Ball of string, maps of the U.S., trading cards |

<table>
<thead>
<tr>
<th><strong>Teacher Activities:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Review Content</td>
</tr>
<tr>
<td>Update statistics</td>
</tr>
<tr>
<td>Print U.S. Maps &amp; Trading Cards</td>
</tr>
<tr>
<td>Gather needed materials</td>
</tr>
<tr>
<td>Lead class discussion and presentation</td>
</tr>
<tr>
<td>Prepare PowerPoint (if desired)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Interest Approach:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Have students look at the tags on their clothing and identify where each item of clothing was made</td>
</tr>
<tr>
<td>• Use clothing as an example of imports and exports</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Content Outline:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Import—a product brought in from another country</td>
</tr>
<tr>
<td>2. Export—a product sent to other countries</td>
</tr>
<tr>
<td>3. Top 5 Export Countries</td>
</tr>
<tr>
<td>- Canada</td>
</tr>
<tr>
<td>- Mexico</td>
</tr>
<tr>
<td>- China</td>
</tr>
<tr>
<td>- Japan</td>
</tr>
</tbody>
</table>
**Student Activities:**
- Use U.S. maps to illustrate imports and exports
- Participate in making a “web of trade” with trading cards and string

4. **Top 5 Import Countries**
- China
- Mexico
- Canada
- Japan
- Germany

5. **Top Exports**
- Soybeans
- Beef, Pork, Poultry
- Fresh and Processed Fruits & Veggies
- Corn
- Tree nuts

6. **Top Imports**
- Fresh and Processed Fruits
- Fresh and Processed Veggies
- Coffee
- Cocoa
- Grains and feeds

7. Use the trading cards and string to show students how countries are connected with trade

8. Discuss how country turmoil, wars, etc., affect the “web” of trade you created

---

**Formative Assessment:**
- Students will be assessed on their activity participation

**Summative Assessment:**
- This objective will also be assessed on the end of unit quiz

---

**Sources:**


Trading Cards

I am the country AFGHANISTAN; I produce dried fruit which is exported to Libya

I am the country LIBYA; I produce oil which is exported to Norway

I am the country NORWAY; I produce fish which is exported to Sweden

I am the country SWEDEN; I produce wood which is exported to Germany

I am the country GERMANY; I produce machinery which is exported to France

I am the country FRANCE; I produce textiles which are exported to Italy

I am the country ITALY; I produce footwear which is exported to the United States

I am the country of the UNITED STATES; I produce industrial goods which are exported to Canada

I am the country CANADA; I produce wheat which is exported to Venezuela

I am the country VENEZUELA; I produce gold which is exported to Brazil
I am the country BRAZIL; I produce coffee which is exported to Djibouti

I am the country DJIBOUTI; I produce animal hides which are exported to Somalia

I am the country SOMALIA; I produce food goods which are exported to Saudi Arabia

I am the country SAUDI ARABIA; I produce oil which is exported to Switzerland

I am the country of GREAT BRITAIN; I produce manufactured goods which are exported to the Netherlands

I am the country SWITZERLAND; I produce watches which are exported to Albania

I am the country ALBANIA; I produce wheat which is exported to Greece

I am the country GREECE; I produce tobacco which is exported to Portugal

I am the country PORTUGAL; I produce cork which is exported to Great Britain

I am the country of the NETHERLANDS; I produce chocolate which is exported to Japan
3-Ag Products Quiz

Ag Products Celebration of Knowledge

Name: __________________________

1. An agricultural _______________ is the result of an agricultural process and is ready for consumption.

2. A _______________ is a raw agricultural product.

3. List two locally grown agricultural commodities discussed in class.
   a. __________________________________________________
   b. __________________________________________________

4. Identify the top commodity grown in your state.
   a. __________________________________________________

5. Identify the top commodity grown in the United States.
   a. __________________________________________________


7. Define export.

8. List 1 commodity the United States exports to other countries.
   a. __________________________________________________

9. Why is it important for the United States to be able to trade with other countries?

10. Identify one product that you think could be made from the biodegradable plastic we made. Explain why you think this is a good product to be made from the plastic.
3- Agriculture Products Quiz Answer Key

Ag Products Celebration of Knowledge

Name: __________________________

1. An agricultural PRODUCT is the result of an agricultural process and is ready for consumption.

2. A COMMODITY is a raw agricultural product.

3. List two locally grown agricultural commodities discussed in class.
   a. __________________________________________________
   b. __________________________________________________
   ANSWERS WILL VARY.

4. Identify the top commodity grown in your state.
   a. __________________________________________________
   ANSWERS WILL VARY.

5. Identify the top commodity grown in the United States.
   a. __________________________________________________
   ANSWERS WILL VARY.

   Something you bring in from another country

7. Define export.
   Something you send to another country

8. List 1 commodity the United States exports to other countries.
   a. __________________________________________________
   ANSWERS WILL VARY.

9. Why is it important for the United States to be able to trade with other countries?
ANSWERS WILL VARY. Students should include that we rely on other countries to provide us things we cannot grow or produce here.

10. Identify one product that you think could be made from the biodegradable plastic we made. Explain why you think this is a good product to be made from the plastic.

ANSWERS WILL VARY.
Animal Science
# 4-Animal Science
## 4.1 Animal byproducts

**Course:** 8th Grade Agriculture  
**Unit:** Animal Science  
**Lesson:** Animal Byproducts  
**Estimated Time:** 2 days  
**Objective:** Identify byproducts generated from the animal industry  
**Materials Needed:** student iPad, activity sheet, football, soccer ball, volleyball

**Interest Approach:**
- Have items such as a football, baseball, soccer ball at the front of the room. Have students guess what they are made out of (animal hide)
- Discuss how many footballs, etc. can be made from one cow hide
- 20 footballs, 144 baseballs, 18 soccer balls, 18 volleyballs, 12 basketballs

**Content Outline:**
1. Byproducts – products of considerably less value than the major product (hide or pelt)
2. Edible – fit to be eaten by humans (tallow or lard)
3. Inedible – not edible; unfit to be eaten by humans (cosmetics)
4. Species – a class of animals having some common characteristics or qualities; distinct sort or kind (swine)
5. Beef-Antifreeze, Gum, Jello
6. Sheep-Explosive, Baggage, Bandaid
7. Swine-Football, Paint, Heart
8. Goat-Candle, Leather
9. Poultry-Fertilizer, Pillow, Medicine

**Teacher Activities:**
- Review Content  
- Update statistics as needed  
- Prepare EDU Breakout

**Student Activities:**
- Define terms  
- Complete the EDU breakout game  
- Complete wrap-up questions

**Formative Assessment:**
- Students will be assessed on their EDU breakout completion

**Summative Assessment:**
- This objective will be assessed on the end of unit quiz

**EDU Breakout:**
**Game Code:** IZH-LYP-6F3  
**Game Link:** [https://platform.breakoutedu.com/game/digital/animal-byproducts-88624](https://platform.breakoutedu.com/game/digital/animal-byproducts-88624)

**Sources:**
Animal Byproducts Breakout Game

Define the following terms:
- Byproduct-
- Edible-
- Inedible-
- Species-

After defining the terms above, use the game link and game code to complete the byproducts breakout game. You must “unlock” each code before moving onto the next one. Everyone has to complete this, but you may work in groups no bigger than 3.

Game Code: IZH-LYP-6F3
Game Link: https://platform.breakoutedu.com/game/digital/animal-byproducts-88624

Wrap-Up Questions
1. Why are animal byproducts important to you?

2. How often do you use animal byproducts?

3. Can you list another animal byproduct you use every day?
EDU Breakout Answer Key

1. Species- Beef
2. I help keep your car cool on a hot summer day-Antifreeze
3. Impulse buy at the checkout counter-(gum) 72113
4. Jiggly food-Jello
5. Species-Sheep
6. Boom-Explosive
7. Don’t forget me when you leave for your trip-Baggage
8. Put me on your finger when you get a get a paper cut-bandaid
9. Species- (pig) 1697
10. Throw me around on the field with your friends-Football
11. You may use me in the art room-(paint) Diamond, Triangle, Star, Circle, square
12. Put this part in yourself if yours isn’t working well-heart
13. Species-Goat
14. Burn me to make the room more pleasant-Candle
15. Your nice jacket may be made out of me-Leather
16. Species-Poultry
17. Put me on the field to help the crops grow-Fertilizer
18. If you are sick, your doctor might give me to you-Medicine
19. Lay your head down-Pillow
# 4-Animal Science

## 4.2 Butter lab

### Course: 8th Grade Agriculture

**Unit:** Animal Science  
**Lesson:** Butter Lab  
**Estimated Time:** 1 day  
**Objective:** Trace the steps milk goes through to make butter

### Materials Needed:  
Lab sheet, jar, heavy whipping cream, crackers

### Teacher Activities:  
- Review lab procedures  
- Gather necessary materials

### Interest Approach:  
- Review some of the byproducts students discovered in their breakout session the past couple days and lead into discussion about butter making

### Lab Instructions:  
1. Fill container 2/3 full with heavy whipping cream. Firmly secure the lid  
2. Shake the container briskly for 5-10 minutes (the more cream in the container, the longer it will take).  
3. Continue shaking until the butter is a solid lump in the jar  
4. Once the butter has formed, open the jar and pour off the buttermilk. See the attached “What’s Happening” worksheet to engage students in making observations during the butter making process  
5. To make salted butter, add salt just before the butter is formed  
6. Spread butter on crackers and enjoy

### Extension:  
- Try salting before shaking  
- Experiment by having students record the temperature of cream when beginning, length of time and number of shakes it takes for butter to form  
- Instead of using heavy whipping cream, try using light cream, whole milk and 2% milk. Compare results

<table>
<thead>
<tr>
<th>Scientific Observations:</th>
<th>Formative Assessment:</th>
</tr>
</thead>
</table>
| - What does the cream look like?  
- What does it remind you of?  
- What does it taste like? | - Students will be assessed on their butter making lab sheet |

<table>
<thead>
<tr>
<th>Summative Assessment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- This objective will also be assessed on the end of unit quiz</td>
</tr>
</tbody>
</table>

### Sources:  
Here’s What’s Happening
Butter Lab

First
Describe what the cream looks like:
It reminds me of: because...

Then, after 5 minutes
Describe what the cream looks like:
It reminds me of: because...

Finally
Describe what the cream looks like:
It reminds me of: because...

Then, 5 more minutes
Describe what the cream looks like:
It reminds me of: because...
4-Animal Science
4.3 Specialty animals

**Course:** 8th Grade Agriculture  
**Unit:** Animal Science  
**Lesson:** Specialty Animals  
**Estimated Time:** 2 days  
**Objective:** Identify specialty animal production systems and their importance to the agriculture industry  
**Materials Needed:** paper, colored pencils, specialty animal pictures, animal fact sheets, activity sheet, student iPads

| Teacher Activities: |  
| --- | --- | 
| • Review Content | **Interest Approach:** | 
| • Prepare activity sheet | • Provide each student with a piece of paper and challenge students to draw a llama, alpaca, bison, ostrich, and emu (this usually takes a while as I like to have students show off their drawings) | 
| • Collect needed materials |  
| • Facilitate discussion on each specialty animal’s importance |  
| **Content Outline:** |  
| 1. Specialty animal-animals raised within agricultural production other than the traditional agricultural animals (cattle, sheep, swine, goats, horses, and poultry) |  
| 2. Llama-used for protection of livestock and packing/pulling  
-Among the oldest domestic animals in the world  
-Modified ruminant with a three-compartment stomach  
-Spitting is their way of saying “bug off”  
-Have a communal dung pile  
-Larger than an alpaca |  
| 3. Alpaca-used for fiber/hair  
-First imported to the United States in 1984  
-Produces one of the world’s finest and most luxurious natural fibers  
-Don’t have incisors, horns, hooves or claws  
-Have a communal dung pile  
-Smaller than a llama |  
| 4. Bison-used for meat  
-Raised in every state of the U.S.  
-Meat found in most natural food stores  
-Teetered on the brink of extinction little more than a century ago |  
| Student Activities: |  
| • Draw specialty animals |  
| • Fill in specialty animal fact sheet |  
| • Participate in discussions |
- At the turn of the last century, fewer than 1,000 bison remained in existence
- Meat is low in fat, high in protein and iron, and has a great cholesterol profile

5. Ostrich - used for meat
   - Largest living bird in the world
   - Flightless bird
   - Only has two toes, other birds have three or four toes
   - Runs at speeds of up to 40 MPH for sustained times
   - Lives to be 50-75 years old

6. Emu - used for meat
   - Native to Australia
   - Commercial emu farming in the U.S. did not begin until the late 1980s
   - Three forward pointing toes
   - Low fat meat has less sodium than beef, chicken, or turkey
   - Egg shells are used for decorative purposes

<table>
<thead>
<tr>
<th>Formative Assessment:</th>
<th>Summative Assessment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Students will be assessed on their participation in class discussion and on their activity sheet completion</td>
<td>• This objective will be assessed on the end of unit quiz</td>
</tr>
</tbody>
</table>

Sources:
https://www.ffa.org/myresourcedocuments/MS.AS.3.2.pdf
http://www.alpacainfo.com/academy/about-alpacas
https://www.ostriches.org/about-ostrich/faqs
http://afs.okstate.edu/breeds/other/
https://bisoncentral.com/faq/
Specialty Animal Facts Sheet

- **Llama**
  - Used for-
  - Among the ____________ _______________ animals in the ________________
  - Modified ________________ with a ___________-
  - __________________ is their way of saying “_________ __________”
  - Have a communal ______________ pile
  - ____________ than an ______________

- **Alpaca**
  - Used for-
  - First ___________ to the United States in ______________
  - Produces one of the ________________ finest and most luxurious ________________ _______________
  - Don’t have _____________, horns, _____________, or _____________
  - ________________ dung pile
  - Smaller than a ______________

- **Bison**
  - Used for-
  - Raised in every ______________ of the U.S.
  - Meat found in most ______________ food ______________
  - Teetered on the brink of ________________ little more than a ______________ ago
  - At the turn of the last century, fewer than __________ bison remained in ________________
  - Meat is __________ in ______________, ____________ in ______________ and ______________, and has a great cholesterol ________________
• Ostrich
  • Used for-
    • Largest living ____________ in the world
    • __________________________ bird
    • Only has ____________ toes, other birds have ____________
      or ____________ toes
    • ____________ at speeds of up to _________MPH for
      sustained times
    • Lives to be ________ - _________ years old

• Emu
  • Used for-
    • Native to ________________________
    • Commercial emu ________________ in the U.S. did not
      begin until the late __________
    • ____________ forward pointing _____________
    • Low ____________ meat has less ____________ than
      beef, ________________, or ________________
    • ____________ shells are used for ____________________
      purposes
# 4-Animal Science
## 4.4 Animal research

<table>
<thead>
<tr>
<th><strong>Course:</strong></th>
<th>8th Grade Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unit:</strong></td>
<td>Animal Science</td>
</tr>
<tr>
<td><strong>Lesson:</strong></td>
<td>Animal Research</td>
</tr>
<tr>
<td><strong>Estimated Time:</strong></td>
<td>2 days</td>
</tr>
<tr>
<td><strong>Objective:</strong></td>
<td>Explain and summarize the importance of a selected animal to the agriculture industry</td>
</tr>
<tr>
<td><strong>Materials Needed:</strong></td>
<td>Student iPad, internet, activity sheet</td>
</tr>
</tbody>
</table>

### Interest Approach:
- Have students discuss their favorite things about some of the animals you have discussed in this unit and lead into discussion about their next project.

### Content Outline:
1. Select an animal (specialty or regular) we have discussed in class
2. Create a jamboard with the following information of your animal
   - Where did your animal originate from?
   - Is a specific person credited with discovering your animal?
   - What is the current population of your animal? U.S.? World?
   - What is your animal used for?
   - Is your animal similar to another animal?
   - At least 3 fun facts about your animal.
   - Make sure to include pictures

### Teacher Activities:
- Review Content
- Update information as needed

### Student Activities:
- Create a jamboard covering the information related to their selected animal

### Formative Assessment:
- Students will be assessed on their jamboard using the rubric provided

### Summative Assessment:
- This objective will also be assessed on the end of unit quiz
Animal Research

Step by step directions are listed below. You will put your information into a jamborad to share with the class.

1. Select one of the animals we have been looking at the past couple days (please don’t everyone pick the same one)
   a. Specialty-llama, alpaca, bison, ostrich, emu
   b. Regular-cattle, pigs, chickens, sheep, goats
   c. Special requests upon teacher approval

2. Use the internet to research and find a little more information about the animal you selected. Answer the following questions:
   a. Where did your animal originate from?
   b. Is a specific person credited with discovering your animal?
   c. What is the current population of your animal? U.S.? World?
   d. What is your animal used for?
   e. Is your animal similar to another animal?
   f. At least 3 fun facts about your animal.

3. Make sure to include pictures

<table>
<thead>
<tr>
<th>Descriptors</th>
<th>Score</th>
<th>Points Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Representative: Visual aid answers all questions listed above</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Neatness: visual aid is well organized and has minimal grammatical errors</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Creativity: Visual aid is eye appealing and utilizes creativity</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>20</strong></td>
</tr>
</tbody>
</table>

**Teacher Comments:**
Animal Science Unit Quiz

Name: ________________________

Directions: Answer the following questions

1. ______ Byproduct
2. ______ Edible
3. ______ Inedible
4. ______ Species
5. ______ Specialty animal

A. Animals raised within agricultural production other than the traditional agricultural animals
B. Not edible; unfit to be eaten by humans
C. Products of considerably less value than the major product
D. A class of animals having some common characteristics or qualities; distinct sort or kind
E. Fit to be eaten by humans

6. Why are animal byproducts important to you?

Match the byproduct with the animal it comes from as discussed in class.

7. ______ Jello        A. Pig
8. ______ Explosive     B. Cattle
9. ______ Football      C. Sheep
10. ______ Candle       D. Goat
11. ______ Fertilizer   E. Poultry
Match the following uses with the correct animals. (may be used more than once)

12. _______ Llama
13. _______ Alpaca
14. _______ Bison
15. _______ Ostrich
16. _______ Emu

A. Used for Meat
B. Used for fiber and hair
C. Used for protection of livestock

17. Why are specialty animals important to agriculture?

18. You selected one animal to do some extra research on. What animal did you select? If you had to pick the most important piece of information to share about that animal, what would it be?
4-Animal Science Quiz Key

Animal Science Unit Quiz Key

Name: ________________________

Directions: Answer the following questions

1. C  Byproduct
2. E  Edible
3. B  Inedible
4. D  Species
5. A  Specialty animal

A. Animals raised within agricultural production other than the traditional agricultural animals
B. Not edible; unfit to be eaten by humans
C. Products of considerably less value than the major product
D. A class of animals having some common characteristics or qualities; distinct sort or kind
E. Fit to be eaten by humans

6. Why are animal byproducts important to you?
   Answers will vary.

Match the byproduct with the animal it comes from as discussed in class.

7. B  Jello            A. Pig
8. C  Explosive        B. Cattle
9. A  Football          C. Sheep
10. D  Candle           D. Goat
11. E  Fertilizer       E. Poultry
Match the following uses with the correct animals. (may be used more than once)

12. C Llama  A. Used for Meat
13. B Alpaca  B. Used for fiber and hair
14. A Bison  C. Used for protection of livestock
15. A Ostrich
16. A Emu

17. Why are specialty animals important to agriculture? Answers will vary.

18. You selected one animal to do some extra research on. What animal did you select? If you had to pick the most important piece of information to share about that animal, what would it be? Answers will vary.
Plant Science
## 5-Plant Science
### 5.1 Plant parts

<table>
<thead>
<tr>
<th>Course: 8th Grade Agriculture</th>
<th>Interest Approach:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: Plant Science</td>
<td>• In table partners, come up with as many plant parts as possible</td>
</tr>
<tr>
<td>Lesson: Plant Parts</td>
<td>• Lead students in a discussion about what they came up with and see if they can collectively identify the 4 main parts of a plant</td>
</tr>
<tr>
<td>Estimated Time: 1-2 days</td>
<td></td>
</tr>
<tr>
<td>Objective: Identify the 4 major parts of a plant and explain the functions of each</td>
<td></td>
</tr>
<tr>
<td>Materials Needed: Activity sheet, PowerPoint, paper, scissors, colored pencils</td>
<td></td>
</tr>
</tbody>
</table>

### Teacher Activities:
- Review Content
- Create PowerPoint
- Gather needed materials

### Student Activities:
- Fill in table with statistics on activity sheet
- Create plant part foldable

### Content Outline:
4 main parts of a plant
1. Root
   - Anchors the plant
   - Uptake water
   - Uptake nutrients
2. Stem
   - Hold plant upright
   - Transport nutrients
3. Flower
   - Attract insects
   - Produce seeds and fruit
4. Leaf
   - Photosynthesis
   - Store food

### Formative Assessment:
- Students will use fist of 5 to demonstrate comfortability with the content at the end of the lesson

### Summative Assessment:
- This objective will be assessed on the end of unit assessment
# Plant Parts

<table>
<thead>
<tr>
<th>Plant Part</th>
<th>Plant Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>
Plant Parts Foldable

1. Gather the needed materials from your teacher
   a. Scissors
   b. Paper
   c. Colored Pencils
   d. You will also need the notes we just took

2. Folder your paper in half length wise (hot dog style)

3. On one half of the paper, draw a plant including all 4 major parts of the plant

4. On the other half, being careful to only cut through one side, cut slits into the paper to create flaps

5. On each flap, write the functions of each plant part
### 5-Plant Science

#### 5.2 Germination lab

<table>
<thead>
<tr>
<th><strong>Course:</strong></th>
<th>8th Grade Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unit:</strong></td>
<td>Plant Science</td>
</tr>
<tr>
<td><strong>Lesson:</strong></td>
<td>Germination Lab</td>
</tr>
<tr>
<td><strong>Estimated Time:</strong></td>
<td>1 Day</td>
</tr>
<tr>
<td><strong>Objective:</strong></td>
<td>Calculate germination rate and identify what plants need to germinate</td>
</tr>
<tr>
<td><strong>Materials Needed:</strong></td>
<td>seeds, paper towels, plastic bags, water, permanent market, lab sheet</td>
</tr>
</tbody>
</table>

**Teacher Activities:**
- Review lab procedures
- Gather necessary materials

**Scientific Observations:**
- Recorded on student lab sheet

**Formative Assessment:**
- Student lab sheet

**Interest Approach:**
- Ask students to define the word germination
- Lead discussion based on student answers that germination is when the seed begins to grow

**Lab Instructions:**
1. Fold the paper towel so it will fit nicely into the plastic bag
2. Use the permanent marker to draw a 10-square frame on the plastic bag
3. Spray the paper towel with water so that it is damp
4. Place the wet paper towel in the bag
5. Place one seed in each frame compartment in the paper towel
6. Close the bag and set near a sunny window

**Summative Assessment:**
- This objective will be assessed on the end of unit test

**Teacher Activities:**
- Review lab procedures
- Gather necessary materials

**Scientific Observations:**
- Recorded on student lab sheet

**Formative Assessment:**
- Student lab sheet

**Interest Approach:**
- Ask students to define the word germination
- Lead discussion based on student answers that germination is when the seed begins to grow

**Lab Instructions:**
1. Fold the paper towel so it will fit nicely into the plastic bag
2. Use the permanent marker to draw a 10-square frame on the plastic bag
3. Spray the paper towel with water so that it is damp
4. Place the wet paper towel in the bag
5. Place one seed in each frame compartment in the paper towel
6. Close the bag and set near a sunny window

**Summative Assessment:**
- This objective will be assessed on the end of unit test
Germination Lab

Instructions:
1. Fold the paper towel so it will fit nicely into the plastic bag
2. Use the permanent marker to draw a 10-square frame on the plastic bag
3. Spray the paper towel with water so that it is damp
4. Place the wet paper towel in the bag
5. Place one seed in each frame compartment in the paper towel
6. Close the bag and set near a sunny window for a few days

Scientific Questions:
1. Where is your bag located (window, table, etc.)?

2. Do you think all the seeds will germinate? Why?

3. After your seeds have sat for a few days, collect your bag and answer the following questions.
   a. How many seeds germinated?

   b. Why do you think that many germinated?

   c. What percentage of your table seeds germinated?

   d. How do your results compare to your classmates?
# 5-Plant Science
## 5.3 Plant byproducts

**Course:** 8th Grade Agriculture  
**Unit:** Plant Science  
**Lesson:** Plant Byproducts  
**Estimated Time:** 2-3 Days  
**Objective:** Identify and explain plant byproducts and their importance  
**Materials Needed:** student iPads, activity sheets, plant byproduct examples (optional)

### Interest Approach:
- Have students list plant products they have used in the last 24 hours (try to list as many as possible)  
- Discuss how plant byproducts are similar to animal byproducts (both are a secondary product after harvest)

### Content Outline:
1. **Byproduct** - a secondary product created during the creation of the primary product  
2. **Uses for plant byproducts**  
   - Human food products (fruits and vegetables can also be connected to different plant parts roots, leaves, stem, flower)  
   - Animal food products (hay, corn, cotton seed, vegetable oil, grains, forages, etc.)  
   - Nonfood plant products (fibers, energy, cosmetics, plastics, fuels oils, etc.)  
3. **Suggested plants for students to choose from:**  
   - Corn  
   - Soybeans  
   - Cotton  
   - Pine Trees  
   - Peanuts  
   - Sugarcane  
   - Lemons  
   - Maple Trees

### Teacher Activities:
- Review Content  
- Facilitate discussion to come up with as many plant byproducts for each category as possible  
- Update lists as needed

### Student Activities:
- Participate in discussions  
- Create byproduct collage for selected plant  
- Complete plant comparison chart

### Formative Assessment:
- Students will be assessed on their collage

### Summative Assessment:
- This objective will also be assessed on the end of unit quiz

**Sources:**
file:///Users/esunderman/Downloads/Useful%20products%20from%20plants.pdf
Plant Product Research Activity

Name: __________________________

Directions: You will research a particular plant that has been assigned to you. As a group, use the internet and other sources to discover where the plant is grown, what food products come from the plant (if any), and what nonfood products (byproducts) come from the plant.

Once you have filled in the chart below, you will create a visual aid of your choice to share with your classmates.

Plant name: __________________________

Scientific name: __________________________

<table>
<thead>
<tr>
<th>Describe where and how the plant is grown.</th>
<th>Name the food products derived from the plant. (Which part of the plant is the food derived from?)</th>
<th>Name several nonfood byproducts derived from the plant. (Describe specifically which parts of the plant are used for the byproducts)</th>
</tr>
</thead>
</table>

Suggested collages makers:
Jamboard
https://www.postermywall.com/
https://www.smore.com/app
https://www.canva.com/
<table>
<thead>
<tr>
<th>Descriptors</th>
<th>Score</th>
<th>Points Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Representative: visual aid represents the select plant byproducts accurately</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Neatness: visual aid is well organized and eye appealing</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Creativity: visual aid utilizes creative components</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>20</strong></td>
</tr>
</tbody>
</table>

**Teacher Comments:**
### Plant Product Research

Directions: Use the chart below to record information from your classmate’s plant collages

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Food Products (2)</th>
<th>Nonfood Products (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reflection Questions:

1. Which of these byproducts surprised you the most? Why?

2. Compare your classmate’s plants with the plant you researched. Are they similar in any way? How are they different?
5-Plant Science Quiz

Name: ________________________

Plant Science Quiz

Match the plant part with the correct function.

1. ______ Anchors the plant   A. Leaf
2. ______ Attracts insects    B. Roots
3. ______ Photosynthesis     C. Flower
4. ______ Holds the plant upright D. Stem

5. Explain how the plant parts function together.

6. Define germination.

7. In your germination lab experiment, did all your seeds germinate? Why?

8. Name one plant byproduct for each of the following categories. (3 Points)

<table>
<thead>
<tr>
<th>Human Food</th>
<th>Animal Food</th>
<th>Non-Food</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5-Plant Science Quiz Answer Key

Name: ______________________

Plant Science Quiz

Match the plant part with the correct function.

1. B Anchors the plant A. Leaf
2. C Attracts insects B. Roots
3. A Photosynthesis C. Flower
4. D Holds the plant upright D. Stem

5. Explain how the plant parts function together.
   Answer will vary.

6. Define germination.
   Sprouting of a seed, when a seed begins to grow

7. In your germination lab experiment, did all your seeds germinate? Why?
   Answers will vary

8. Name one plant byproduct for each of the following categories. (3 Points)

<table>
<thead>
<tr>
<th>Human Food</th>
<th>Animal Food</th>
<th>Non-Food</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruits and Veggies</td>
<td>Hay, corn, soybeans, etc.</td>
<td>Fibers, cosmetics, etc.</td>
</tr>
</tbody>
</table>
United States
## 6-United States
### 6.1 States project

<table>
<thead>
<tr>
<th><strong>Course:</strong> 8th Grade Agriculture</th>
<th><strong>Interest Approach:</strong></th>
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<tbody>
<tr>
<td><strong>Unit:</strong> United States</td>
<td>• Ask students “if you could go anywhere in the U.S. for a vacation, where would you go?”</td>
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<tr>
<td><strong>Lesson:</strong> States Project</td>
<td>• Allow for discussion about where the best place to visit would be</td>
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<tr>
<td><strong>Estimated Time:</strong> 3 Days</td>
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<td><strong>Objective:</strong> Classify animals and plants grown in different regions of the U.S.</td>
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<td><strong>Materials Needed:</strong> student iPads, activity sheet</td>
<td><strong>Content Outline:</strong></td>
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<td>1. State Regions</td>
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<td>2. Agriculture State Research</td>
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<tr>
<td></td>
<td>- Climate</td>
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<td></td>
<td>- Environment</td>
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<td></td>
<td>- Plants</td>
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<td></td>
<td>- Animals</td>
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<tr>
<td></td>
<td>- Other state agriculture facts</td>
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<thead>
<tr>
<th><strong>Teacher Activities:</strong></th>
<th><strong>Student Activities:</strong></th>
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<tr>
<td>• Review Content</td>
<td>• Create a presentation for the selected states</td>
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<tr>
<td>• Prepare activity sheet</td>
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<td>• Prepare example (optional)</td>
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<tr>
<th><strong>Formative Assessment:</strong></th>
<th><strong>Summative Assessment:</strong></th>
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<tr>
<td>• Students will use first of 5 to demonstrate completion at the end of each research day</td>
<td>• Students will be assessed on their visual presentation</td>
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Regions of the United States Project

Project
1. You will be studying the climate, environment, common plants, common animals of a specific region of the United States
2. Within your region you will select two states to focus on
3. You will use your iPad to research the selected states
4. Use a presentation of your choice and submit final project on google classroom

Regions
We will select regions today, so you know what you will be researching the rest of the week.
2. East Coast: Virginia, North Carolina, South Carolina, Georgia, Florida
3. Southeast: Ohio, West Virginia, Kentucky, Tennessee, Alabama, Mississippi
4. Midwest: Indiana, Illinois, Arkansas, Missouri, Minnesota, Nebraska, Michigan, Wisconsin
5. West Coast: Washington, Oregon, California, Nevada, Arizona
6. South: Texas, Oklahoma, Kansas, Louisiana
8. Alaska and Hawaii

Use the following outline to guide your research and presentation:
1. Climate and Environment
   a. Average temperatures/Temperature ranges
   b. Types of soil
   c. Rainfall
   d. Other climate info available
2. Plants
   a. Common plants grown
   b. Any other general crop information
3. Animals
   a. Common animals raised
   b. Any other general animal information
4. Fun state facts
5. Pictures
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<th>Points Possible</th>
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<tr>
<td>listed above in detail</td>
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</tr>
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<td>Neatness: presentation is well organized and visually</td>
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<tr>
<td>appealing</td>
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<td>Creativity: student utilizes creative components in</td>
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Teacher comments:
8th Grade Exploratory Agriculture
(9-week course)

Student Guide
Name: ____________________
Defining Agriculture
1-Defining Agriculture
1.1 Where would we be without agriculture?

Where would we be without agriculture?

Directions: As you rotate around the room, summarize each aspect of agriculture below. Be prepared to share your thoughts with the class.

6. Agriculture

7. Food

8. Fiber

9. Natural Resources

10. World Population

Conclusion Questions:
4. How does food impact me on a daily basis?

5. How does fiber impact me on a daily basis?

6. Why is the world population important to people in agriculture?
1-Defining Agriculture
1.2 A tent off the pathway

A tent off the pathway

You will create a collage of the pathway you selected. Be sure to include the following information on your pathway collage:

*your collage can be made by hand or made on your iPad

- Title
- Definition of pathway
- 5 careers in this pathway
  - Brief description of each career
- Include at least 3 pictures of careers in your pathway
- 2 colleges that offer programs in your pathway
- Fun Facts

Grading Rubric:

<table>
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<th>Descriptor</th>
<th>Score</th>
<th>Points Possible</th>
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<tbody>
<tr>
<td>Representative: Collage represents selected pathway and includes information listed above</td>
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<tr>
<td>Neatness: Collage is organized with minimal grammatical errors</td>
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<td>5</td>
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<tr>
<td>Creative: Shape, special effects, 3-D, etc. utilized</td>
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<td>Total</td>
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<td>15</td>
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<td>Teacher Comments:</td>
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1-Defining Agriculture
1.3 Career profile

Career Profile

Directions: You will be creating a mock Facebook profile of the career you selected. Below I have provided some point to guide you in creating your profile.

8. Select a career related to agriculture that was mentioned yesterday in our presentations that interests you (does not have to be one you researched)
9. Answer the bullet points below regarding your career
   1. Name/Title
   2. About Section
      1. Education required for the career (high school, college, trade school, etc.)
      2. Average career salary (how much money can you make in this career?)
      3. Daily responsibilities (what does someone with job do every day?)
      4. Benefits/Advantages of the career
      5. Disadvantages of the career
   3. 2 pictures of someone in the career

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<td>Neatness: Profile is organized with minimal grammatical errors</td>
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1-Defining Agriculture
1.4 Ag’s economic impact

Ag’s Economic Impact

Directions: In your groups, answer the questions related to the level of agriculture you selected. Once you have answered the questions, create a script for your radio or news broadcast. A timeline has been provided below to help keep you on track.

Timeline:
Day 1-research and script
Day 2-record and edit broadcast
Day 3-final edits and share broadcasts

Agriculture in Your World
• What are the top 5 countries that the U.S. exports agricultural products to?  
• What are the top 5 countries that the U.S. imports agricultural products from?  
• How many of these countries are similar?  
• If there are a large number of similar countries, how does that affect our agricultural trade?

Agriculture in Your State
• What are the top five commodities produced in your state and how do they rank in the U.S.?  
• What food and meat products are popular in your state?  
• What similarity is there between the types of commodities produced and the popular food products in your state? Why are they similar?

Agriculture in your Country
• How many people are employed by agriculture in the U.S.?  
• How large is the USDA budget and how does the USDA spend that money?  
• How much money do people spend on meat and other food items?  
• If you were to spend $1 on an item of food, how much of that pays for the farmer, wholesaler, retailer, etc?
### Grading Rubric

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<tbody>
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<tr>
<td>Neatness: Broadcast is well edited and easy to watch and/or follow</td>
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<tr>
<td>Creative: Broadcast is interesting and uses enhanced features</td>
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<td><strong>Total</strong></td>
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<td><strong>Teacher Comments</strong></td>
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</table>
Agriculture Perceptions
2-Agriculture Perceptions
2.1 Perception vs. Reality

FFA Fact Sheet Questions

2. What 3 things does the FFA mission focus on?

3. How many student members are in FFA?

4. ______ percent of FFA members are female and ______ percent are male.

5. ______ % of members are in middle school, ______ % are in high school, and ______ % are in college.

6. ______ % of members are white/non-hispanic, ______ % are non disclosed.

8. How many career development events does the FFA offer?

9. List the top 6 FFA membership states and the number of members each state has.
   1.
   2.
   3.
   4.
   5.

8. How much do FFA member earn annually through hands-on work experiences?
2-Agriculture Perceptions
2.2 Characteristics of Agriculturists

Characteristics of Agriculturists

9. Define agriculturist-

10. There are approximately ____________ agriculturalists in the United States today.
   a. 3.2 million
   b. 5 million
   c. 1.5 million
   d. 2 million

11. The average age of an agriculturists is ____________.
   a. 47
   b. 25
   c. 56
   d. 52

12. There are ____________ women agriculturists.
   a. 152
   b. 306,209
   c. 150,345
   d. 969,672

13. There are ____________ African American agriculturists.
   a. 35,000
   b. 44,629
   c. 1,902
   d. 13,293

14. ____________ % of agriculturists have another primary occupation (job).
   a. 56
   b. 12
   c. 26
   d. 44

15. ____________ % of agriculturists are under 35 years old.
   a. 50
   b. 34
   c. 13
   d. 6

16. ____________ has the most farms in the US.
   a. Missouri
   b. California
   c. Oklahoma
   d. Texas
2-Agriculture Perceptions
2.3 Myths about food production

Myths About Food Production

4. Read about your assigned myth from the slideshow Miss Sunderman provides.
   a. **DO NOT** google your topic to find information-use the information provided.

5. Select 5 pieces of information you think is important to know about your topic.

6. Create a flyer/poster with the following information:
   e. A title for your poster
   f. At least 2 pictures
   g. 5 important pieces of information about your topic
   h. Whether you agree or not with the practice and why

Your poster may be on paper or on your iPad. If you choose to use your iPad, use one of the following resources below:

https://www.postermywall.com/
https://www.smore.com/app
Jamboard
https://www.canva.com/
Google Drawing
https://blog.befunky.com/design-templates/
https://create.piktochart.com/dashboard

Grading Rubric

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Teacher Comments
Standard Agricultural Practices

7. Why do we keep pigs in stalls?
Some may believe that keeping animals in a cage, stall, or other confined space is cruel. Let’s take a look at this standard industry practice to understand some reasons that farmers keep gilts and sows in stalls.

One practice that some farmers may implement is placing pregnant gilts or sows in stalls. There are many benefits of using stalls. First, there is much less labor involved in caring for the pig. It provides a much safer environment for a handler working with the animal in the event that she needs medical treatment. Also, farmers are able to control the temperature in the stalls by using heated mats or heating lamps for newborn piglets. Finally, they can help control the problem of sows crushing piglets when the sow rolls over because the stalls have areas separated by bars to provide piglets their own area.

8. Why do we keep chickens in cages?
Some may believe that keeping animals in a cage, crate, or other confined space is cruel. Let’s take a look at this standard industry practice to see some reason that farmers keep chickens in cages.

Chicken is a very common meat that consumers enjoy each year. On average, each person in the United States will eat over 75 pounds of chicken each year. We also use chickens for their eggs, feathers, and even medicines. The demand for chickens and their products is high. Therefore, the chicken industry needed to create a way to safely and humanely produce enough chickens to meet the demands of consumers.

One of those ways is keeping layers (hens that lay eggs) in cages. Broiler chickens, or those grown for meat, are kept in environmentally controlled buildings but not in cages. The hens that lay the eggs are kept in cages for many reasons. First, it makes collecting those eggs much easier. Most producers use an automatic egg-collecting system that reduces labor. This is also helpful to make sure that the eggs do not get damaged or cracked by the hens. Automated feeding and watering systems are also easily used with these layers. These specially designed cages help one hen produce around 300 eggs each year.

9. Why do we dehorn cattle?
Many people believe that some of the practices that farmers use with their animals are inhumane. Let’s take a look at the standard industry practice to see some reasons that producers dehorn their cattle.

Beef is a very common meat that consumers enjoy each year. On average, each person in the United States will eat over 65 pounds of beef each year. There are other products
we get from cattle such as using their hides for leather and even their hair in paintbrushes. Producers help get these products to us by performing standard industry practices on their cattle.

One practice that beef producers perform on their cattle is dehorning. Some breeds of cattle have horns and dehorning is the removal of those horns. The main reason this is done is to prevent the cattle from hurting other cattle with their horns. It is also much safer for people to work with these cattle if they do not have to worry about being injured by horns.

Usually the process is performed on young calves because it can be traumatic to the animal if performed on an animal that is too old. The process is simple. A producer will place a caustic chemical on the area where the horns grow. This chemical prevents the tissue from growing. Other times the horns are sawed or clipped off.

10. Why do we produce animals on large scale operations?
Many people believe that the family farm has disappeared! This is simply untrue. The truth is that the family farm has grown larger in order to produce food to feed the growing population, and that 98% of all farms are still family owned. To add to this, 82% of all agriculture products sold comes from these family farms.

Why do we produce animals on large-scaled operations? They are designed to help the farmer produce livestock more efficiently. This means fewer people are needed to feed and manage these animals without sacrificing proper care and attention to each animal on a daily basis. Many large scaled operations take advantage of automatic feeding and watering. Even given the efficiencies gained by large-scale production, a farm isn't like an assembly line. Each animal is different and requires individual care from time to time. These farms employ many people who care about producing food. Also, environmental factors, such as temperature and humidity, can be controlled more easily. These operations are designed so that the animals are as comfortable as possible, and therefore, as profitable as possible. Without these larger-scaled operations it might not be possible to produce enough products to meet consumer demand. Also, the prices of many products would increase since less food would be available. Lastly, the consistency and quality of products could be negatively affected.

11. Why do we use chemicals on food?
Many people believe that using chemicals on our food supply is wrong and harmful in many ways. Although there are some downfalls to using pesticides and other chemicals, consumers should not be worried about being harmed if these chemicals are used properly.

There are many advantages to using chemicals. They help eliminate pests, such as weeds, insects, and diseases. They can also provide nutrients that our crops need, in the form of fertilizers. To add to this, they make it possible to produce higher quantities of food for consumers.
There are government agencies, such as the Environmental Protection Agency (EPA), that help make sure that only approved chemicals are used on our food. This helps ensure that chemicals do not contaminate our environment or harm people who eat the food. Chemicals make it possible for you to enjoy food that is good for your body and free of unwanted pests or diseases.

12. Why do we brand animals?
Many people believe that some of the practices that farmers use with their animals are inhumane. Let’s take a look at the standard industry practice to see some reasons that producers brand their cattle.

Beef is a very common meat that consumers enjoy each year. On average, each person in the United States will eat over 65 pounds of beef each year. There are other products we utilize from cattle, such as using their hides for leather and hair in paintbrushes. Producers help get these products to us by performing standard industry practices on their cattle.

One practice that beef producers perform on their cattle is branding. This is done mainly to help identify their cattle and claim ownership over their cattle. Each producer selects a unique brand and then has it registered with a state agency. Since no two brands are alike, it makes it very simple to identify the owner of the cattle.

There are two methods that are commonly used. They are hot iron and freeze branding. The hot iron method burns the skin and doesn’t allow hair to grow back. However, the freeze branding uses liquid nitrogen and does allow the hair to grow back. The liquid nitrogen causes loss in skin pigmentation and therefore the hair grows back white.
Agriculture Products
3-Agriculture Products
3.1 Our nation’s commodities

**Commodity vs. Product Answer Key**

Locally grown commodities (Taylor county):

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<th>Value</th>
<th>Fact</th>
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Top 5 state commodities:

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<tr>
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<th>Value</th>
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Top 5 national commodities:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Value</th>
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3-Agriculture Products
3.2 Corn lab

Biodegradable Corn Plastic

10. Place a tablespoon of cornstarch in a paper cup or plastic bag
11. Add two drops of corn oil to the cornstarch
12. Add a tablespoon of water to the oil and cornstarch
13. Stir the mixture
14. Add two drops of your favorite food coloring to the mixture and stir well
15. Part 1 Scientific Observations

16. Microwave your biodegradable plastic for 20-25 seconds on high
17. Part 2 Scientific Observations
**Corn Plastic Lab Questions**

**Part 1:**

4. What do you notice about your biodegradable plastic?

5. Is your biodegradable plastic the same as other students’ plastic?

6. What could you make with this biodegradable plastic if you let it harden?

**Part 2:**

4. What happens to your plastic?

5. Form your plastic into a ball and describe what you see?

6. What are 2 things that could be made from corn plastic in the future?
3-Agriculture Products
3.3 Ice cream in a bag

**Ice Cream in a Bag**

7. In the small plastic bag place 1 cup of half and half, 2 tablespoons of sugar, and ½ teaspoon of vanilla

8. Seal the bag and mix ingredients

9. Fill gallon size bag roughly half full of ice, add ½ cup of rock salt

10. Put the sealed small bag into the gallon ice bag, seal the gallon bag

11. SHAKE! Shake the mixture for roughly 15-20 minutes until it hardens

12. Top with your favorite items and ENJOY!
Ice Cream in a Bag Questions

6. Identify the 3 commodities our ice cream was derived from.

7. What is the freezing point of water?

8. What did the mixture look like after 5 minutes of shaking?

9. What happened to the ice cubes?

10. Why do we add salt to the ice?
3-Agriculture Products
3.4 Import vs. Export
Animal Science
4-Animal Science
4.1 Animal byproducts

**Animal Byproducts Breakout Game**

Define the following terms:
- Byproduct-
- Edible-
- Inedible-
- Species-

After defining the terms above, use the game link and game code to complete the byproducts breakout game. You must “unlock” each code before moving onto the next one. Everyone has to complete this, but you may work in groups no bigger than 3.

Game Code: IZH-LYP-6F3
Game Link: [https://platform.breakoutedu.com/game/digital/animal-byproducts-88624](https://platform.breakoutedu.com/game/digital/animal-byproducts-88624)

**Wrap-Up Questions**

4. Why are animal byproducts important to you?

5. How often do you use animal byproducts?

6. Can you list another animal byproduct you use every day?
Here’s What’s Happening

First
Describe what the cream looks like:
It reminds me of:
because...

Then, after 5 minutes
Describe what the cream looks like:
It reminds me of:
because...

Then, 5 more minutes
Describe what the cream looks like:
It reminds me of:
because...

Finally
Describe what the cream looks like:
It reminds me of:
because...
Specialty Animal Facts Sheet

- **Llama**
  - Used for-
  - Among the _______________ ________________ animals in the _______________
  - Modified _______________ with a ________________-
  - ________________ is their way of saying “_________ ____________”
  - Have a communal ________________ pile
  - ________________ than an ________________

- **Alpaca**
  - Used for-
  - First ________________ to the United States in ________________
  - Produces one of the ________________ finest and most luxurious ________________
  - Don’t have ________________, horns, ________________, or ________________
  - Have a ________________ dung pile
  - Smaller than a ________________

- **Bison**
  - Used for-
  - Raised in every ________________ of the U.S.
  - Meat found in most ________________ food ________________
  - Teetered on the brink of ________________ little more than a ________________ ago
  - At the turn of the last century, fewer than ________________ bison remained in ________________
  - Meat is ________________ in ________________, ________________ in ________________, ________________ and ________________, and has a great cholesterol ________________
• Ostrich
  o Used for-
  o Largest living ____________ in the world
  o ____________________ bird
  o Only has ________ toes, other birds have ____________
    or ____________ toes
  o ____________ at speeds of up to ________ MPH for
    sustained times
  o Lives to be ________ - ________ years old

• Emu
  o Used for-
  o Native to ________________________
  o Commercial emu ____________________ in the U.S. did not
    begin until the late __________
  o ____________ forward pointing ____________
  o Low ____________ meat has less ________________ than
    beef, ________________, or ________________
  o ____________ shells are used for ____________________
    purposes
4-Animal Science
4.4 Animal research

**Specialty Animal Research**

Step by step directions are listed below. You will put your information into a jamborad to share with the class.

4. Select one of the animals we have been looking at the past couple days (please don’t everyone pick the same one)
   a. Specialty-llama, alpaca, bison, ostrich, emu
   b. Regular-cattle, pigs, chickens, sheep, goats
   c. Special requests upon teacher approval

5. Use the internet to research and find a little more information about the animal you selected. Answer the following questions:
   a. Where did your animal originate from?
   b. Is a specific person credited with discovering your animal?
   c. What is the current population of your animal? U.S.? World?
   d. What is your animal used for?
   e. Is your animal similar to another animal?
   f. At least 3 fun facts about your animal.

6. Make sure to include pictures

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<td>Total</td>
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Teacher Comments:
Plant Science
5-Plant Science
5.1 Plant parts

# Plant Parts

<table>
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<th>Plant Part</th>
<th>Plant Functions</th>
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<td>7.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
</tr>
</tbody>
</table>
Plant Parts Foldable

6. Gather the needed materials from your teacher
   a. Scissors
   b. Paper
   c. Colored Pencils
   d. You will also need the notes we just took

7. Folder your paper in half length wise (hot dog style)

8. On one half of the paper, draw a plant including all 4 major parts of the plant

9. On the other half, being careful to only cut through one side, cut slits into the paper to create flaps

10. On each flap, write the functions of each plant part
5-Plant Science
5.2 Germination lab

Germination Lab

Instructions:
7. Fold the paper towel so it will fit nicely into the plastic bag
8. Use the permanent marker to draw a 10-square frame on the plastic bag
9. Spray the paper towel with water so that it is damp
10. Place the wet paper towel in the bag
11. Place one seed in each frame compartment in the paper towel
12. Close the bag and set near a sunny window for a few days

Scientific Questions:
4. Where is your bag located (window, table, etc.)?

5. Do you think all the seeds will germinate? Why?

6. After your seeds have sat for a few days, collect your bag and answer the following questions.
   a. How many seeds germinated?

   b. Why do you think that many germinated?

   c. What percentage of your table seeds germinated?

   d. How do your results compare to your classmates?
5-Plant Science
5.3 Plant byproducts

**Plant Product Research Activity**

Name: __________________________

Directions: You will research a particular plant that has been assigned to you. As a group, use the internet and other sources to discover where the plant is grown, what food products come from the plant (if any), and what nonfood products (byproducts) come from the plant.

Once you have filled in the chart below, you will create a visual aid of your choice to share with your classmates.

Plant name: __________________________

Scientific name: __________________________

<table>
<thead>
<tr>
<th>Describe where and how the plant is grown.</th>
<th>Name the food products derived from the plant. (Which part of the plant is the food derived from?)</th>
<th>Name several nonfood byproducts derived from the plant. (Describe specifically which parts of the plant are used for the byproducts)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Suggested collages makers:
Jamboard
https://www.postermymwall.com/
https://www.smore.com/app
https://www.canva.com/
<table>
<thead>
<tr>
<th>Descriptors</th>
<th>Score</th>
<th>Points Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Representative: visual aid represents the select plant byproducts accurately</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Neatness: visual aid is well organized and eye appealing</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Creativity: visual aid utilizes creative components</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>20</strong></td>
</tr>
</tbody>
</table>

**Teacher Comments:**
**Plant Product Research**

Directions: Use the chart below to record information from your classmate’s plant collages

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Food Products (2)</th>
<th>Nonfood Products (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reflection Questions:

3. Which of these byproducts surprised you the most? Why?

4. Compare your classmate’s plants with the plant you researched. Are they similar in any way? How are they different?
United States
6-United States
6.1 States project

Regions of the United States Project

Project
5. You will be studying the climate, environment, common plants, common animals of a specific region of the United States
6. Within your region you will select two states to focus on
7. You will use your iPad to research the selected states
8. Use a presentation of your choice and submit final project on google classroom

Regions
We will select regions today, so you know what you will be researching the rest of the week.
10. East Coast: Virginia, North Carolina, South Carolina, Georgia, Florida
11. Southeast: Ohio, West Virginia, Kentucky, Tennessee, Alabama, Mississippi
12. Midwest: Indiana, Illinois, Arkansas, Missouri, Minnesota, Nebraska, Michigan, Wisconsin
13. West Coast: Washington, Oregon, California, Nevada, Arizona
14. South: Texas, Oklahoma, Kansas, Louisiana
15. North Plains: North Dakota, South Dakota, Montana, Wyoming
16. Alaska and Hawaii

Use the following outline to guide your research and presentation:
6. Climate and Environment
   a. Average temperatures/Temperature ranges
   b. Types of soil
   c. Rainfall
   d. Other climate info available
7. Plants
   a. Common plants grown
   b. Any other general crop information
8. Animals
   a. Common animals raised
   b. Any other general animal information
9. Fun state facts
10. Pictures
<table>
<thead>
<tr>
<th>Descriptors</th>
<th>Score</th>
<th>Points Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Representative: presentation covers all information listed above in detail</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Neatness: presentation is well organized and visually appealing</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Creativity: student utilizes creative components in presentation</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>

**Teacher comments:**
Chapter 5

5.1 Reflection

Since completing this project, there are a couple things I wish I would have done prior to its completion. First, I should have created a survey for all Iowa agriculture teachers asking what topics they thought were important to cover in a middle school curriculum, and the length of time they have for a middle school course. This information would have allowed me to develop a comprehensive statewide curriculum in comparison to the more district focused curriculum I developed.

Along with the survey, I wish I had disseminated a rough draft of the curriculum to educators of different experience levels and locations across the state. The input I received from local contributors was valuable, but due to the diversity of agriculture across the state, other, more experienced educators could have provided helpful suggestions from a new perspective.

Not only has this creative component been beneficial to my professional work, but all my work throughout my master’s pursuit. To be honest, when I started I wasn’t sure what to expect. Maybe classes a little harder than undergraduate, maybe a few challenging assignments, maybe a few “tough” professors’, but what I have received is so much more than a few tough assignments. Have I struggled and had challenging assignments every semester? Absolutely. I have been pushed out of my comfort zone, encouraged to think outside the box, and extended my learning in multiple ways. To begin, my understanding of the breath of agricultural education was expanded way beyond my own classroom and formal education. I now include adult education and extension programming in my immediate thoughts with agricultural education. These were areas I was aware of before, but never applied their ideas and concepts to my own agricultural education experiences. This deeper understanding has encouraged me to reach out
and build better relationships with our local extension office staff, and other local agricultural businesses. Instead of each of us operating independently, we can work together to offer the best agricultural education for all in our area.

Community relationships have provided me with a lot of support, but the relationships I have built with fellow agricultural educators throughout my master’s program are just as valuable. I am fortunate to have worked with experienced educators and university professors. With encouragement and guidance from these relationships, my knowledge and confidence as an educator have grown exponentially. If possible, I would like to have the students I had in my first or second year of teaching back to use my improved curriculum and teaching methods with. I think they would see a much more confident and knowledgeable teacher.

In my classroom, I frequently use the phrase “you learn something new every day”. I do my best to model this phrase for my students as I believe education is a lifelong endeavor. Stepping back into the classroom to pursue my master’s degree is a primary example of continuing education. My students are able to see that I still value education and want to continue learning alongside them each and every day. By modeling lifelong learning, I hope that my students will embrace the same concept and strive to continue learning every day.

In summary, I have found this experience both challenging and rewarding. Due to the coursework I completed during this program, I know I am a better educator, FFA advisor, and role model. Knowing I have a variety of resources available, I feel confident moving forward to continue improving myself, my curriculum, and my FFA chapter.

5.2 Recommendations

When using this curriculum, I have a few recommendations for teachers. Like most curriculum guides, planning and preparation are vital for its success. Most of the instructional
materials and topics are easy for adults to understand, but there are several experiments and lessons that require materials to be prepared ahead of time.

I would also recommend utilizing the curriculum to its fullest extent. While the curriculum was designed to be flexible, it is still important to include sequence and scaffolding for students to make full-circle connections. Lessons and activities can be modified to fit the needs of individual programs. It is also important to plan ahead to ensure you have the proper supplies and materials needed for note-taking or lab experiments.

The final recommendation I would make is to utilize the curriculum for two nine-week periods or more, and report back any complications or improvements you would like to see made to the curriculum. Teachers should utilize a journal to indicate what went well, what didn’t work, what was helpful, and what was missing. After receiving the reports, I would like to organize and review the data to make necessary updates to the curriculum.

5.3 Extensions

This curriculum was developed to be taught in an eighth-grade nine-week course, but I believe it also has the potential to be used in a variety of other settings. It could be modified to be used as sixth-grade or seventh-grade agriculture curriculum. For schools without a middle school agricultural education course, specific units could be selected to be taught in general education courses. Teachers could also utilize the flexible curriculum to include FFA activities such as supervised agricultural experiences (SAE) and career development events (CDE).
References


