

## AgX Detailed Course Outline

### Lesson 1 Ag History

1. Humans consume agricultural products and natural resources.
  - Simulate a hunter-gatherer society.
2. Agriculture producers select plant varieties based on their traits and growing environment.
  - Compare and contrast vegetable varieties.
  - Use production information to select vegetable seeds.
3. Accurate records are an essential task during agricultural production.
  - Plant vegetable seeds and keep a record of their growth and care.
4. Sustainability involves environmental, economic, and social activities supporting a growing population.
  - Identify historical events that have increased the global population.
  - Sustainably manage a virtual farm.
5. Agriculturists are addressing the needs of a growing world population.
  - Construct and design a diversified growing environment with limited space.

### Lesson 2 Plants We Grow

1. Temperature and water availability impact a seed's germination rate.
  - Evaluate the variables related to seed germination.
2. Plants require a growing medium with air, water, and nutrients.
  - Compare soil to a mixed growing media.
  - Prepare a media in a planter and transplant plants.
3. Producers use sustainable practices to increase plant and soil health.
  - Virtually grow crops using traditional and sustainable practices.
  - Observe the effect of the 4Rs on plant growth.
4. Plants provide aesthetic benefits to humans.
  - Construct a floral arrangement to enhance an indoor area.

### Lesson 3 Resources We Use

1. Clothing and plastics are comprised of plant and animal byproducts.
  - Identify sources of common animal and plant fibers.
  - Produce biodegradable plastic from agricultural crops.
2. Woods are used for structural and household items.
  - Identify the properties of wood and explain how woods are used in consumer products.
3. Human activities impact natural resource availability.
  - Evaluate the effect of human activity on natural resources availability.
4. Fertilizer selection is a sustainable practice.
  - Use sustainable practices to reduce fertilizer runoff.

## **Lesson 4 Resources We Recycle**

1. Ecosystems are self-sustaining environments.
  - Construct and monitor a compost tower within a garden.
2. Agriculturalists use sustainable practices to conserve freshwater.
  - Virtually grow crops and implement water conservation practices.
  - Explore the influence of mulch on soil moisture and temperature.
3. Sustainable practices improve water quality.
  - Design a water filtration system to address polluted water.
4. Recycling natural resources decreases waste and pollution.
  - Compare recyclable natural resources.
  - Design a prototype using sustainable practices.

## **Lesson 5 Energy We Consume**

1. Consumers use energy from natural resources.
  - Design and construct a solar oven to cook s'mores.
  - Compare energy from multiple sources.
2. Ethanol is a renewable energy source that supports the agricultural industry.
  - Produce ethanol from corn-based sources.
3. Agricultural processing can result in byproducts with different nutritional values.
  - Compare protein and energy content of grain and distillers grain.

## **Lesson 6 Animals We Care For**

1. Plants and animals are dependent upon each other.
  - Match pollinators with flowers they pollinate.
  - Pollinate cucumber flowers.
2. Throughout history, animals have played many roles in the development of human civilizations.
  - Compare precursor and modern domesticated animal species.
3. Humans used selective breeding to raise animals for specific purposes.
  - Compare breeds within a chosen species.
4. Proper handling techniques are essential for keeping the animal and handler safe.
  - Practice tying halters and knots for handling large animals.
  - Demonstrate how to hold different animal species.
5. Animal producers are responsible for selecting equipment that meets an animal's needs.
  - Select equipment to care for a specific animal.
  - Design and test animal bedding.

## **Lesson 7 Food We Eat**

1. Food processors convert raw products into palatable food.
  - Mill flour from wheat and evaluate protein differences across flour types.
2. Food safety practices make food more available.

- Process food products from raw commodities.
  - Compare cleaning methods for fresh fruits and vegetables.
3. Sensory properties of food influence consumer preference and acceptance.
    - Evaluate different varieties of pickles.
  4. Plant and animal products contain essential nutrients.
    - Develop a food label for a jar of pickles and identify major nutrients.

### **Lesson 8 Ag in My Future**

1. A wide variety of careers exist within agriculture.
  - Use past course experiences to plan a potential SAE Project.
  - Share SAE ideas with classmates.
  - Reflect on skills learned and safety procedures practiced during AgX.
2. Agricultural commodities are processed into useable consumer products.
  - Produce a salve and create a leather key fob from animal byproducts.
  - Explain how agricultural products follow the value chain from field to fork.
  - Prepare a salad, bread, butter, and ice cream to consume in class.