

Course Title: Agricultural Science IV

Board Approval Date: 4/14/14

Credit / Hours: 1 credit

Course Description:

This course focuses on mastery of the PA Academic Standards for Science and Technology as well as Career Education and Work. As students progress through this course they will participate in a systematic study of an advanced outlook and understanding of the agricultural industry. At this point in the student's educational career, they have continued to specialize in their own interest areas. Throughout this course, instruction is provided in these specialty areas that are agriculturally related to this industry. Also, involved with this course is cooperative work experience program. Material being presented in this course is designed to provide a specialized and diverse amount of information to students who in turn can apply these principles to their own individual situations. Information being presented such as: Hydroponics, Pneumatics, Agronomy, Ag Structures, Agricultural Systems, Ag Cooperatives, Hydraulics, Rafter Cutting, Electrical Wiring, Christmas Tree Production, Composting Methods, Pollinators, Turf/Landscape Management, Greenhouse Management, General Wood and Metal Working, Concrete and Masonry and Agricultural Sales.

Learning Activities / Modes of Assessment:

Large group instruction	Tests and Quizzes
Laboratory/Shop demonstration	Checklists / Teacher Observation
Small group work	Projects with Rubrics
Greenhouse instruction	Lesson Worksheets
Career Pathway Explorations	LFS Worksheets

Instructional Resources:

www.agednet.com
www.pacareerzone.com
FFA Videos
You Tube Videos
Agri-science 4th Edition Text (Burton & Cooper, 2011)
Agricultural Mechanics 6th Edition Text (Herren, 2011)

Course Pacing Guide

Course: **Agricultural Science IV**

Course Unit (Topic)	Length of Instruction (Days/Periods)
1. Supervised Agricultural Experience	20 days
2. Agronomy (Weeds, Seeds, and Plants)	20 days
3. Pollinators	20 days
4. Building Construction	30 days
5. Composting/Waste Management	20 days
6. Concrete/Masonry	30 days
7. Turf and Landscape Management	20 days
8. Hydraulics and Pneumatics	<u>20 days</u>
TOTAL DAYS	180 Days

Topic: Unit A-1-Supervised Agricultural Experience

Days: 20

Subject(s): Vocations

Grade(s): 12th

Know:

13.1.B – Compact

Analyze career options based on personal interests, abilities, aptitudes, achievements and goals.

13.1.C – Compact

Analyze how the changing roles of individuals in the workplace relate to new opportunities within career choices.

Understand:

Students should understand how to analyze career options and complete a SAE project.

Do:

13.1.A – Essential

Relate careers to individual interests, abilities, and aptitudes.

13.1.D – Important

Evaluate school-based opportunities for career awareness/preparation, such as, but not limited to: Career days, Career portfolio, Community service, Cooperative education, Graduation/senior project, Internship, Job shadowing, Part-time employment, Registered apprenticeship and School-based enterprise.

13.1.F – Essential

Analyze the relationship between career choices and career preparation opportunities, such as, but not limited to: Associate degree, Baccalaureate degree, Certificate/licensure, Entrepreneurship, Immediate part/full time employment, Industry training, Military training, Professional degree, Registered apprenticeship, Tech Prep and Vocational rehabilitation centers.

13.1.H – Important

Review personal high school plan against current personal career goals and select postsecondary opportunities based upon personal career interests.

Topic: Unit B-2-Agronomy (Weed Seeds and Plants)

Days: 20

Subject(s): Vocations

Grade(s): 12th

Know:

3.4.12.A3. – Essential TECHNOLOGY CONNECTIONS - Demonstrate how technological progress promotes the advancement of science, technology, engineering and mathematics (STEM).

- Types of weed plants
- Weed control methods
- Organic farming and alternative plant growing methods

Understand:

Students should understand how to identify and control weed plants associated with modern agricultural production.

Do:

3.4.12.A3. – Essential TECHNOLOGY CONNECTIONS - Demonstrate how technological progress promotes the advancement of science, technology, engineering and mathematics (STEM).

3.4.12.B1. – Essential EFFECTS OF TECHNOLOGY - Analyze ethical, social, economic, and cultural considerations as related to the development, selection, and use of technologies.

13.1.A – Essential
Relate careers to individual interests, abilities, and aptitudes.

13.3.G – Unranked
Evaluate the impact of lifelong learning on career retention and advancement.

- Identify characteristics of weed plants
- Explain various weed control methods
- Discuss new technologies associated with raising and growing plants

Topic: Unit C-3-Pollinators

Days: 20

Subject(s): Vocations

Grade(s): 12th

Know:

Understand:

Do:

13.4.A – Compact

Analyze entrepreneurship as it relates to personal career goals and corporate opportunities.

13.1.B – Compact

Analyze career options based on personal interests, abilities, aptitudes, achievements and goals.

13.1.E – Compact

Justify the selection of a career.

Students should understand the important role that all pollinators play in our ecosystem

3.4.12.E2. – Essential

AGRICULTURAL AND RELATED BIOTECHNOLOGIES - Compare and contrast the technologies of biotechnology, conservation, bio-fuels, and ecosystems as they relate to managing Earth's resources effectively.

13.1.A – Essential

Relate careers to individual interests, abilities, and aptitudes.

Topic: Unit D-4-Building Construction

Days: 30

Subject(s): Vocations

Grade(s): 12th

Know:

Understand:

Do:

<p>3.4.12.A2. – Essential CORE CONCEPTS OF TECHNOLOGY - Describe how management is the process of planning, organizing, and controlling work.</p> <p>3.4.12.E7. – Important CONSTRUCTION TECHNOLOGIES - Analyze the technologies of prefabrication and new structural materials and processes as they pertain to constructing the modern world.</p> <p>13.1.B – Compact Analyze career options based on personal interests, abilities, aptitudes, achievements and goals.</p> <p>13.1.C – Compact Analyze how the changing roles of individuals in the workplace relate to new opportunities within career choices.</p>	<p>Students should understand the materials and techniques used in the building construction industry.</p>	<p>3.4.12.A2. – Essential CORE CONCEPTS OF TECHNOLOGY - Describe how management is the process of planning, organizing, and controlling work.</p> <p>3.4.12.E7. – Important CONSTRUCTION TECHNOLOGIES - Analyze the technologies of prefabrication and new structural materials and processes as they pertain to constructing the modern world.</p> <p>13.1.A – Essential Relate careers to individual interests, abilities, and aptitudes.</p>
---	--	---

Topic: Unit E-5-Composting/Waste Management

Days: 20

Subject(s): Vocations

Grade(s): 12th

Know:

Understand:

Do:

13.1.B – Compact

Analyze career options based on personal interests, abilities, aptitudes, achievements and goals.

Students should understand the techniques and procedures used to effectively construct and operate a composting site.

3.4.12.E2. – Essential

AGRICULTURAL AND RELATED BIOTECHNOLOGIES - Compare and contrast the technologies of biotechnology, conservation, bio-fuels, and ecosystems as they relate to managing Earth's resources effectively.

3.4.12.E3. – Essential

ENERGY AND POWER TECHNOLOGIES - Compare and contrast energy and power systems as they relate to pollution, renewable and non-renewable resources, and conservation.

13.1.A – Essential

Relate careers to individual interests, abilities, and aptitudes.

Topic: Unit F-6-Concrete/Masonry

Days: 30

Subject(s): Vocations

Grade(s): 12th

Know:

Understand:

Do:

<div data-bbox="126 342 415 621" data-label="Text" style="background-color: #e0f2f1; padding: 5px; border-radius: 5px;"> <p>3.4.12.A2. – Essential CORE CONCEPTS OF TECHNOLOGY - Describe how management is the process of planning, organizing, and controlling work.</p> </div> <div data-bbox="126 632 415 852" data-label="Text" style="background-color: #e0f2f1; padding: 5px; border-radius: 5px;"> <p>13.1.B – Compact Analyze career options based on personal interests, abilities, aptitudes, achievements and goals.</p> </div>	<p>Students should understand the processes and procedures that are used in the concrete/masonry industry in Pennsylvania.</p>	<div data-bbox="846 342 1455 506" data-label="Text" style="background-color: #e0f2f1; padding: 5px; border-radius: 5px;"> <p>3.4.12.A2. – Essential CORE CONCEPTS OF TECHNOLOGY - Describe how management is the process of planning, organizing, and controlling work.</p> </div> <div data-bbox="846 516 1455 705" data-label="Text" style="background-color: #e0f2f1; padding: 5px; border-radius: 5px;"> <p>3.4.12.C2. – Essential ENGINEERING DESIGN - Apply the concept that engineering design is influenced by personal characteristics, such as creativity, resourcefulness, and the ability to visualize and think abstractly.</p> </div> <div data-bbox="846 716 1455 852" data-label="Text" style="background-color: #e0f2f1; padding: 5px; border-radius: 5px;"> <p>13.1.A – Essential Relate careers to individual interests, abilities, and aptitudes.</p> </div> <div data-bbox="846 863 1455 999" data-label="Text" style="background-color: #e0f2f1; padding: 5px; border-radius: 5px;"> <p>13.3.A – Compact Evaluate personal attitudes and work habits that support career retention and advancement.</p> </div>
--	--	--

Topic: Unit G-7-Turf and Landscape Management

Days: 20

Subject(s): Vocations

Grade(s): 12th

Know:

Understand:

Do:

<p>3.4.12.A2. – Essential CORE CONCEPTS OF TECHNOLOGY - Describe how management is the process of planning, organizing, and controlling work.</p> <p>13.1.B – Compact Analyze career options based on personal interests, abilities, aptitudes, achievements and goals.</p>	<p>Students should understand the proper processes utilized in the turf and landscape industry in Pennsylvania.</p>	<p>3.4.12.A2. – Essential CORE CONCEPTS OF TECHNOLOGY - Describe how management is the process of planning, organizing, and controlling work.</p> <p>13.1.A – Essential Relate careers to individual interests, abilities, and aptitudes.</p> <p>13.1.F – Essential Analyze the relationship between career choices and career preparation opportunities, such as, but not limited to: Associate degree, Baccalaureate degree, Certificate/licensure, Entrepreneurship, Immediate part/full time employment, Industry training, Military training, Professional degree, Registered apprenticeship, Tech Prep and Vocational rehabilitation centers.</p> <p>13.3.A – Compact Evaluate personal attitudes and work habits that support career retention and advancement.</p>
--	---	---

Topic: Unit H-8-Hydraulics and Pneumatics

Days: 20

Subject(s): Vocations

Grade(s): 12th

Know:

Understand:

Do:

13.1.C – Compact

Analyze how the changing roles of individuals in the workplace relate to new opportunities within career choices.

13.3.F – Compact

Evaluate strategies for career retention and advancement in response to the changing global workplace.

13.3.G – Important

Evaluate the impact of lifelong learning on career retention and advancement.

Students should understand the procedures in operating hydraulic and pneumatic units.

13.1.A – Essential

Relate careers to individual interests, abilities, and aptitudes.

13.1.H – Important

Review personal high school plan against current personal career goals and select postsecondary opportunities based upon personal career interests.

13.3.F – Compact

Evaluate strategies for career retention and advancement in response to the changing global workplace.