

Virginia High School Basic Agricultural Science

Course Description: This orientation course builds on basic skills and knowledge gained in the Introduction to the Agricultural Industry course. Major units of instruction include agricultural research, soil science, advanced plant science, biotechnology, advanced animal science. Applied science and math skills and concepts will be stressed throughout the course as they relate to each area. Participation in FFA student organization activities and Supervised Agricultural Experience (SAE) projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

Lesson		Hours/ Problem Area
AS - AgriScience AM- Agricultural Mechanics & Technology HO- Horticulture Cluster APS - Animal, Plant, & Soil Science AB- Agricultural Business Management ER- Environmental Resources		
Instruction in the FFA Organization is to take place at appropriate times throughout the year. Unit: B – Developing Leadership and Communication Skills Problem Area: 1 – Opportunities in FFA and Youth Organizations Lesson: AS B1-2 – Opportunities in the FFA Lesson: AS B1-3 – Achievement in FFA Lesson: AS B1-4 – Leading the FFA Chapter Problem Area: 3 – Developing Communication Skills Lesson: AS B3-4 – Effective Speaking Techniques Lesson: AS B3-8 – Written Communication		10
Instruction in SAE programs is to take place at appropriate times throughout the year. Unit: B – Developing Leadership and Communication Skills Problem Area: 1 – Understanding SAE's Lesson: AS B5-3 - Possible SAE Programs Lesson: AS B5-4 - Planning Your SAE Program Lesson: AS B5-5 - Implementing SAE Programs Lesson: AS B5-6 - Keeping and Using SAE Records Lesson: AS B5-7 - Long Range Plans for Expanding SAE Programs		10
Unit: A – Scientific Research Problem Area: 1 – Conducting Scientific Investigations in Agriculture Lesson: APS A1-1 - Research Methods in Agriculture Lesson: APS A1-2 - Designing and Conducting Agricultural Research Lesson: APS A1-3 - Reporting Agricultural Research Lesson: APS A1-4 - AgriScience Fair Projects Lesson: APS A1-5 - Scientific Measurement Lesson: APS A1-6 - Safety in the Laboratory Lesson: APS A1-7 - Laboratory Tools and Equipment Lesson: APS A1-8 - Using the Microscope		10
Unit: B – Introduction to Plant and Animal Science Concepts Problem Area: 1 – Understanding Taxonomy Lesson: APS B1-1 – Classifying Living Things		2
Unit: B – Introduction to Plant and Animal Science Concepts Problem Area: 2 – Cellular Biology, Genetics, and Biotechnology Lesson: APS B2-1 - Cells Lesson: APS B2-2 – Cell Division Lesson: APS B2-3 – Genetics		12

Lesson: APS B2-4 – Heritability of Traits Lesson: APS B2-5 – Improving Agricultural Plants and Animals Lesson: APS B2-6 – Organismic and Molecular Biotechnology Lesson: APS B2-7 – Advantages and Disadvantages of Agricultural Biotechnology Lesson: APS B2-8 – Career Opportunities in Agricultural Biotechnology	
Unit: D – Soil Science Problem Area: 1 – Basic Principles of Soil Science Lesson: APS D1-7 – Land Capability Classifications Lesson: APS D1-8 – USDA Soil Taxonomy System Problem Area: 2 – Soil Erosion and Land Management Lesson: APS D2-1 – Soil Degradation Lesson: APS D2-2 – Soil Erosion Lesson: APS D2-3 – Calculating Soil Loss Lesson: APS D2-4 – Conservation Tillage Practices Problem Area: 3 Managing Soil Fertility Lesson: APS D3-1 - Soil Nutrient Functions Lesson: APS D3-2 - Soil Chemistry Lesson: APS D3-3 - Fertilizer Formulations Lesson: APS D3-4 - Applying Fertilizers Lesson: APS D3-5 - Characteristics and Sources of Nitrogen Lesson: APS D3-6 – Characteristics and Sources of Phosphorus and Potassium Lesson: APS D3-7 – Characteristics and Sources of Secondary Nutrients and Micronutrients	20
Unit: E – Plant Science Problem Area: 1 – Introduction to Plant Science Lesson: APS E1-2 – Classifying and Naming Plants	2
Unit: E – Plant Science Problem Area: 2 – Plant Anatomy and Physiology Lesson: APS E2-1 – Root Anatomy Lesson: APS E2-2 – Stem Anatomy Lesson: APS E2-3 – Leaf Anatomy and Morphology Lesson: APS E2-4 – Flower Anatomy Lesson: APS E2-5 – Fruit Function and Anatomy	10
Unit: E - Plant Science Problem Area: 3 – Plant Propagation Lesson: APS E3-1 - Propagating Plants Sexually Lesson: APS E3-2 - Propagating Plants Asexually Lesson: APS E3-3 – Plant Breeding Techniques	5
Unit: E – Plant Science Problem Area: 4 – Examining Plant Growth Lesson: APS E4-1 – Seed Germination Processes and Requirements Lesson: APS E4-2 – Plant Internal Structure and Growth Lesson: APS E4-3 – Photosynthesis Lesson: APS E4-4 – The Role of Light in Plant Growth Lesson: APS E4-5 – Cellular Respiration Lesson: APS E4-6 – The Influence of Temperature on Plants Lesson: APS E4-7 – The Significance of Air in Plant Growth Lesson: APS E4-8 – The Importance of Water in Plant Growth Lesson: APS E4-9 – Drainage Lesson: APS E4-10 – Irrigation Lesson: APS E4-11 – Plant Growth Regulators	20

Unit: E - Plant Science Problem Area: 5 - Integrated Pest Management Lesson: APS E5-1 – Integrated Pest Management (IPM) Lesson: APS E5-2 – Weed Control Lesson: APS E5-3 – Insect Pest Control Lesson: APS E5-4 – Plant Diseases Lesson: APS E5-5 - Managing Plant Diseases Lesson: APS E5-6 – Crop Scouting Lesson: APS E5-7 – Pesticide Safety Lesson: APS E5-8 – Pesticide Labels Lesson: APS E5-9 – Pesticide Application Lesson: APS E5-10 – Environmental Impact of Pesticides Lesson: APS E5-11 – Pesticide Licensing	20
Unit: E - Plant Science Problem Area: 6 – Producing Grain Crops Lesson: APS E6-2 - Growing Corn Lesson: APS E6-4 - Growing Wheat Lesson: APS E6-5 – Oat, Barley, and Rye Production Lesson: APS E6-6 – Sorghum Production Lesson: APS E6-7 – Rice Production	10
Unit: E - Plant Science Problem Area: 7 – Producing Oil Crops Lesson: APS E7-2 – Growing Soybeans Lesson: APS E7-3 – Sunflower, Canola, and Peanut Production	4
Unit: E – Plant Science Problem Area: 8 – Grain Transportation, Storage, and Quality Lesson: APS E8-1 –Grain Quality Lesson: APS E8-2 – Grain Handling, Transportation, and Storage	3
Unit: E – Plant Science Problem Area: 9 – Producing Forage Crops Lesson: APS E9-2 – Growing Forage Crops	2
Unit: E – Plant Science Problem Area: 10 – Producing Fiber and Sugar Crops Lesson: APS E10-1 – Cotton Production Lesson: APS E10-2 – Sugar Cane and Sugar Beet Production	3
Unit: C – Animal Science and the Industry Problem Area: 3 – Meeting Nutritional Needs of Animals Lesson: APS C3-1 – Nutrients and Their Importance Lesson: APS C3-2 – Animal Digestion Lesson: APS C3-3 – Major Parts of the Digestive System Lesson: APS C3-4 – Nutritional Needs of Animals Lesson: APS C3-5 – Feedstuffs Lesson: APS C3-6 – Balancing Animal Feed Rations	10
Unit: C – Animal Science and the Industry Problem Area: 4 – Understanding Animal Reproduction Lesson: APS C4-1 – Anatomy and Physiology of Animal Reproductive Systems Lesson: APS C4-2 – Natural Animal Reproduction Lesson: APS C4-3 – Animal Reproduction Management Lesson: APS C4-4 – Animal Reproduction Technology Lesson: APS C4-5 – Lactation	8

Unit C: Animal Science and the Industry Problem Area: 7 - Understanding the Livestock, Large Animal, Poultry and Bee Industries. Lesson: APS C7-2 Types of Beef Cattle Operations Lesson: APS C7-4 Feeding and Managing Dairy Cattle Lesson: APS C7-5 Processing Dairy Products Lesson: APS C7-7 The Stages of Pork Production Lesson: APS C7-9 Feeding and Managing Sheep and Goats Lesson: APS C7-11 Chicken Production Lesson: APS C7-12 Feeding and Managing Chickens Lesson: APS C7-14 Feeding and Managing Equine Lesson: APS C7-15 The Rabbit Industry Lesson: APS C7-16 The Exotic Animal Industry Lesson: APS C7-17 Utilizing Data and Technology to Improve Animal Quality Lesson: APS C7-18 Managing Animal Waste Lesson: APS C7-19 Consumer Preferences in Animal Production Lesson: APS C7-20 Present and Future Trends in the Animal Science Industry Lesson: APS C7-21 Showing and Fitting Livestock and Poultry	15
Unit C: Animal Science and the Industry Problem Area: 6 - Understanding the Processing and Composition of Red Meat Products Lesson: APS C6-1 Red Meat Harvesting Methods Lesson: APS C6-2 Evaluating the Quality of Meat Products	4
Total	180