Date:

PROGRAM COMPETENCY PROFILE FOR CAREER TECHNICAL EDUCATION

Career Cluster: Agriculture, Food and Natural Resources

Rating Scale

1 = NO EXPOSURE; 2 = NOVICE (Information was covered in class, but student cannot demonstrate skill or knowledge without significant supervision); 3 = PROFICIENT (Student regularly demonstrates the knowledge or skill); 4 = MASTERY (Student demonstrates successful completion of this skill numerous times without supervision.)

Common Core: E = English/Language Arts (Reading, Writing, Research, Listening Speaking, Technology) | M = Mathematics (Numbers Quantity, Algebra, Functions, Geometry, Stat&Prob) All Aspects of Industry (AAI) | Career Ready Practices (CRP)

Program Name: PLANT SYST	Effective: 9/2015						
National Standard: National	Career Clusters						
Competencies (statement that provides the overview and defines the instructional area)	Knowledge, Content, and Skills (what a student needs to know and be able to do and upon which they will be assessed) <u>http://www.careertech.org/career-ready-practices</u> <u>http://www.education.nh.gov/career/career/aaoi.htm</u>	NH Common Core State Standards •English/Language Arts/Literacy: E •Mathematics: M	Rating (Perfor needs t be rate compe	Scale/San mance tas to demons d proficie tency)	nple Perfor sks the stuc strate in oro nt in meeti	r mance lent der to ng the	Location in Horticulture Today Textbook
Student will:	Student will:		Studen	t will:			
			1	2	3	4	
A. Understand taxonomic and other classifications of plants to build a working understanding of functional differences.	A1. Classify plants according to taxonomy systems.	ELA: 2, 4, 6, 8	For example: You work for the county cooperative extension office, and a local resident comes in with a mystery plant that she found in her area. She asks you to help her identify the plant. Research the plant, and be prepared to contact the resident with your results. Continue to #2				178–195 Chapter 7 Plant Taxonomypp. 181–188 A System of Botanical Classification (narrative)194 Know and Understand #8 (activity)194 Know and Understand #14 (activity)194 Know and Understand #14 (activity)194 Know and Understand #15 (activity)857 STEM and Academic Activities #2206–218 Plant Parts and Their Functions (narrative)178–195 Plant Taxonomy194 Thinking Critically #1, #2194 STEM and Academic Activities #1, #4195 Communicating about Horticulture #2, 3
			1	2	3	4	
	A2. Apply elements of plant anatomy, physiology and the functions of plant structures to activities associated with plant systems.						<u>196–223 Chapter 8 Plant Biology</u> 200–201 Chloroplasts and Other Plastids 206–207 Roots

					-		206–218 Plant Parts and Their Functions 207–209 Stems 217–218 Seeds 221 Know and Understand #3, 10, 11, 12, 13 222 Thinking Critically #1 226–229 Photosynthesis#1 235 Translocation of Sugars through Phloem 245 Know and Understand #1,2,3, 14 246 STEM and Academic Activities #1 250–254 Light 276 STEM and Academic Activities #2 308–337 Plant Nutrition
			1	2	3	4	
B. Understand how the influence of environmental factors, nutrients and growing media on plant growth impacts the production and management of plants	B3. Determine the influence of environmental factors on plant growth. AAI 5. Underlying Principles of Technology:	ELA: 2, 6, 8, and 9 M: 18, 19	For exa greenh leaves You hav rehabil potenti to pres supervi	imple: Yo ouse, and of your pl ve been a itate the p ial solutio ent your p isor. ue to #6	u work in a l you notice ants are cho ssigned to olants. Dete ns and be p results to yo	that the bloritic. rmine repared bur	224–247 Chapter 9 Plant Growth and Development 248–277 Chapter 10 Environmental Conditions for Growth STEM and Academic Activities 222 #2; 246 #1, 2; 276 #1, 2; 308 #1, 2, 3; 382 #1; 446 #1 SAE Opportunities 223 #4; 247 #2; 277 #2, 3; 309 #4, 5; 337 #3; 363 #3; 383 #3; 403 #1; 447 #3; 477 #3; 505 #2, 3; 567 #2; 597 #2, 3; 629 #2, 3; 663 #2; 715 #2; 777 #2
			1	2	3	4	
	B4. Identify the nature and properties of growing media for use in plant systems.	ELA: 2, 4, 6, 8 M: 18, 19	For exa greenh plants of technic and tec plants f growth plants f results	imple: Yo ouse and using a va ques. Sele chniques f for succes , resulting for sale, a to your su ue to #5	u work in a are propag riety of mer ct the best for the diffe sful and he g in a select nd present upervisor.	ating dia and media rent althy ion of your	278–309 Chapter 11 <i>Soils and Media</i> 231–234 Transpiration 232 Water Uptake and Nutrient Access 234–235 Movement of Solutes 245 Know and Understand #8–14 246 STEM and Academic Activities #2 268–271 Water (environmental conditions for growth)

1 22288 Physical Properties of Soil 227 Sol Water 288-290 Biological Properties of Soil 227 Sol Water 288-290 Biological Properties of Soil 299-305 Soilies Media 299-305 Soilies Smedia 290-305 Chemical Properties of Soil 284 Figure 11-5 288-290 Biological Properties of Soil 290-292 Chemical Properties of Soil 290-292 Sometral Properties of Soil 290-292 Sometral Properties of Soil 290-293 Chemical Properties of Soil 288-290 Biological Properties of Soil 288						275 Know and Understand #20
Image: Second						282–288 Physical Properties of Soil
Set Suburget and manage sol/media nutrients using tests of appropriate materials and/or by examining data. Set Sol Vater 287 Soli Water 287 Soli Water 288-290 Biological Properties of Soli 290-293 Chemical Properties of Soli 290-293 Chemical Soliess Media 295-296 Soliless Media 295-296 Soliless Media 297 Thinking Green: Coconut Coir vs. Peat 300-302 Containers 300-302 Containers 303 Thinking Green: Coconut Coir vs. Peat Moss 300-302 Containers 303 Thinking Green: Coconut Coir vs. Peat 303 Thinking Green: Coconut Coir vs. Peat Moss 300-302 Containers 303 Thinking Green: Coconut Coir vs. Peat 303 Thinking Green: Coconut Coir vs. Peat Moss 300-302 Containers 303 Thinking Green: Coconut Coir vs. Peat 303 Thinking Green: Bioplastic Sleeves 303 Thinking Green: Coconut Coir vs. Peat 303 Thinking Green: Bioplastic Sleeves 303 Thinking Green: Solid 284-280 Biological Properties of Soil 284-280 Biological Properties of Soil 290-292 Chemical Properties of Soil 290-292 Chemical Properties of Soil 290-293 Chemical Properties of Soil 290-292 Chemical Properties of Soil 290-293 Chemical Properties of Soil 290-292 Chemical Properties of Soil 290-292 Chemical Properties of Soil 290-293 Chemical Properties of Soil 290-292 Chemical Properties of Soil						287 Hands-On Horticulture: Water Movement Through Soil
Image: Second						287 Soil Water
Image: Second						288–290 Biological Properties of Soil
In the second						290–293 Chemical Properties of Soil
Image: Solution of the second state of the second						293–300 Soil and Soilless Media
 Prinking Green: Coconut Coir vs. Peat Moss 303 Thinking Green: Bioplastic Sleeves 303 Thinking Green: Bioplastic Sleeves 309 STEM and Academic Activities #6 705 Potting Media 706 Plant Nutrition 282-287 Physical Properties of Soil 290-292 Chemical Properties of Soil 290-292 Chemical Properties of Soil 290-292 Chemical Properties of Soil 290-293 Chemical Properties of Soil 290-294 Chemical Properties of Soil 290-295 Chemical Properties of Soil 290-294 Chemical Properties of Soil 290-294 Chemical Properties of Soil 290-295 Chemical Properties of Soil 290-295 Chemical Properties of Soil 290-295 Chemical Properties of Soil						295–296 Soilless Media
300-302 Containers303 Thinking Green: Bioplastic Sleeves303 Thinking Green: Bioplastic Sleeves309 STEM and Academic Activities #6705 Potting Media706 Plant Nutrition282-287 Physical Properties of Soil284 Figure 11-5289-290 Biological Properties of Soil290-292 Chemical Properties of Soil290-292 Chemical Properties of Soil282-288 Physical Properties of Soil282-288 Physical Properties of Soil282-288 Physical Properties of Soil282-290 Biological Properties of Soil290-293 Chemical Properties of Soil290 File Physical Properties of Soil290 File Physical Properties of Soil291 STEM Connection: Taking a Soil Test a293 STEM Connection: Taking a Soil Test a293 STEM Connection: Taking a Soil Test a293 STEM Connection: Taking a Soil Test a294-325 Soil and Tissue Analysis294-325 Soil						297 Thinking Green: Coconut Coir vs. Peat Moss
BS. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.1234BS. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.1234						300–302 Containers
Book and Academic Activities #6 (1000 and Academic Activities #						303 Thinking Green: Bioplastic Sleeves
Image: Second						309 STEM and Academic Activities #6
Image: Second						705 Potting Media
B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data. 1 2 3 4 310-337 Chapter 12 Plant Nutrition 293 STEM Connection: Taking a Soil Test a Reading a Soil Report						706 Plant Nutrition
BS. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data. 1 2 3 4 BS. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data. 1 2 3 4						282–287 Physical Properties of Soil
B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.1234B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.123309-337 Chapter 12 Plant Nutrition 293 STEM Connection: Taking a Soil Test a Reading a Soil Report 324-325 Soil and Tissue Analysis 514 Test Soil and Tissue Analysis						284 Figure 11-5
B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.1234B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.1234B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.12333B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.12343B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.12343B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.12343B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.12343B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.112333B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.112334B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.11111111111111111111111111 <td< td=""><td></td><td></td><td></td><td></td><td></td><td>289–290 Biological Properties of Soil</td></td<>						289–290 Biological Properties of Soil
B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data. 1 2 3 4 B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data. 1 2 3 4						290–292 Chemical Properties of Soil
B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data. 1 2 3 4 B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data. 1 2 3 4						309 Communicating about Horticulture #2
B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data. 1 2 3 4 B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data. 1 2 3 4						282–288 Physical Properties of Soil
B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.1234B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.112334B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.112334B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.112334B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.112334B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.112334B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data.11233310-337 Chapter 12 Plant Nutrition 293 STEM Connection: Taking a Soil Test a Reading a Soil Report 324-325 Soil and Tissue Analysis EF3 STEM Connection: Nutrient Analysis						288–290 Biological Properties of Soil
B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data. 1 2 3 4 B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data. 1 2 3 4						290–293 Chemical Properties of Soil
Image: Second						308 Thinking Critically #2
Image: Non-state and manage soil/media nutrients using tests of appropriate materials and/or by examining data.Image: Non-state and manage soil/media nutrients using tests of appropriate materials and/or by examining data.Image: Non-state and manage soil/media nutrients using tests of appropriate materials and/or by examining data.Image: Non-state and manage soil/media nutrients using tests of appropriate materials and/or by examining data.Image: Non-state and manage soil/media nutrients using tests of appropriate materials and/or by examining data.Image: Non-state and manage soil/media nutrients using tests of appropriate materials and/or by examining data.Image: Non-state and manage soil/media nutrients using tests of appropriate materials and/or by examining data.Image: Non-state and manage soil/media nutrients using tests of appropriate materials and/or by examining data.Image: Non-state and manage soil/media nutrients using tests of appropriate materials and/or by examining data.Image: Non-state and manage soil/media nutrients using tests of appropriate materials and/or by examining data.Image: Non-state and manage soil/media nutrients using tests of appropriate appropriat						288–290 Biological Properties of Soil
B5. Evaluate and manage soil/media nutrients using tests of appropriate materials and/or by examining data. 310–337 Chapter 12 Plant Nutrition 293 STEM Connection: Taking a Soil Test a Reading a Soil Report 324–325 Soil and Tissue Analysis		1	2	3	4	
tests of appropriate materials and/or by examining data. 293 STEM Connection: Taking a Soil Test a Reading a Soil Report 324–325 Soil and Tissue Analysis	B5. Evaluate and manage soil/media nutrients using					310–337 Chapter 12 Plant Nutrition
324–325 Soil and Tissue Analysis	tests of appropriate materials and/or by examining data.					293 STEM Connection: Taking a Soil Test and Reading a Soil Report
FEZ STEM Connection: Nutriant Analysis						324–325 Soil and Tissue Analysis
557 STEM Connection: Nutrient Analysis						557 STEM Connection: Nutrient Analysis
647 Soil Analysis and Amendments						647 Soil Analysis and Amendments

							758 Hands-On Horticulture: Turf Soil Testing Protocol
			1	2	3	4	
	B6. Analyze nutritional requirements to develop and						310–337 Chapter 12 Plant Nutrition
	implement a fertilization plan for specific crops or						296, 331 Slow-release fertilizer
	plants.						298–300 Organic Mulches
	CRF. Employ value and reliable research strategies						314 Nitrogen Application
							325–327 Organic Materials
							327–328 Inorganic Fertilizers
							328–329 Fertilizer Calculations
							468 Fertilizer Injectors
							483–484 Complete and Incomplete Fertilizers
							484–485 Soluble and Insoluble Fertilizers
							485 Organic and Inorganic Fertilizers
							556–558 Nutrient Management (nursery production)
							577 Fertilizer (vegetable production)
							622 Nutrient Management (fruit and nut production)
							651 Mowing and Fertilizing (landscape design)
							703 Interior Plantscaping
							706 Plant Nutrition (interior plantscaping)
							731–732 Fertilizing (landscape)
							758–759 Soil Preparation (turfgrass)
							764–765, 772 Fertilization (turfgrass)
			1	2	3	4	
C. Understand the	C7. Demonstrate plant propagation techniques.	ELA: 2, 7, 8, 9	For exa	mple: You	u are a lar	ndscaper	238–363 Chapter 13 Seed Propagation
fundamentals of the production, culture.	AAI 4. Technical and Production Skills	M: 2, 6, 15	who is o bed for	developin a homeov	g a new g wner, usii	arden ng only	364–383 Chapter 14 Stem and Leaf
harvesting, and	CRP: Apply appropriate academic and technical skills.		existing	g materials	s onsite. I	Devise a	Propagation
maintenance of plants to demonstrate successful			plan that uses appropriate				235–239 Reproduction (narrative)
plant management			propagation methods and maintains overall plant health, and review it			eview it	245 Know and Understand #17
techniques.			with th	e homeow	vner.		341 Apomixis (narrative)

						366 Introductory paragraph
						381 Know and Understand #1, 2
						386–387 Layering in Propagation (narrative)
						235–239 Reproduction (narrative)
						245 Know and Understand #17
						341 Apomixis (narrative)
						366 Introductory paragraph
						381 Know and Understand #1, 2
						386–387 Layering in Propagation (narrative)
						341–344 Seed Germination (narrative)
						384–403 Chapter 15 Layering and Division
						404–427 Chapter 16 Grafting and Budding
						<u>428–447 Chapter 17 Tissue Culture:</u> Micropropagation
						493–496 Plant Materials (narrative)
						543 Planting (container-grown)
						545–546 Planting (field-grown)
						548–550 Installation/Planting (pot-in-pot)
						584 Production Methods (vegetables)
						589 Transplants
						605–607 Planting (fruits and nuts)
						610–611 Planting (tree fruits and nuts)
						618–622 Planting (vine fruits)
						727–730 Planting the Design (landscape)
		1	2	3	4	
C8. Develop and implement a plant management plan	ELA: 2, 3, 4, 6, 7, 8,	For exa	mple: You	ı are a hort	iculture	28 Thinking Critically #1, 2543 Planting
for plant nearth and productivity.	Э М.Э.С.15	teacher	at school	who is star	rting a	(container)
impacts of decisions.	IVI: 2, 6, 15	student	a with the s. Your go	als are to b	or both	255–257 Plant Spacing and Orientation
		provide	healthy, o	quality pro	duce for	295–296 Solliess Media
		your customers and supplement the				300–302 Containers
		need to	determin	e what cro	ps meet	331 Fertigation
		local ne	eds and a	ttract pote	ntial	331 Slow-Release Fertilizer
		your sch	hool admi	nistration.		331–332 Soil Injection

	Continu	ue to #9 8	a 10		349–353 Greenhouse Production
					541–544 Container-Grown Production
					544 Maintenance (container)
					544 Harvest (container
					545–546 Planting (field)
					546 Maintenance (field)
					547 Harvesting (field)
					548–548 Installation (pot-in-pot)
					549–550 Planting and Maintenance (pot-in- pot)
					550 Harvest (pot-in-pot)
					553–556 Water Management
					556–558 Nutrient Management
	1	2	3	4	
C9. Develop and implement a plan for integrated pest management. (insects, diseases and nutrition)					106 Pest Management (sustainable agriculture)
CRP: Utilize critical thinking to make sense of					167 Pesticide Labels
problems and persevere in solving them.					489 Pest Control (greenhouse production)
					561 Integrated Pest Management
					561 Integrated Pest Management (nursery production)
					566 Know and Understand #21
					586 Integrated Pest Management (vegetable production)
					615 Integrated Pest Management (fruit and nut production)
					652 Integrated Pest Management (landscape design)
					762 Integrated Pest Management for Lawns
					768 Integrated Pest Management for Turf
					776 Know and Understand #17
					777 STEM and Academic Activities #4
					778 Communicating about Horticulture #2
					778–801 Chapter 29 Integrated Pest Management

					796 Chemical Controls
					800 Know and Understand #10–19
					801 SAE Opportunities #2, 3, 4
					802–829 Chapter 30 Insects
					814 AgEd Connection: Pests and Disorders Identification (illustrated)
					827 Thinking Critically #1, 2
					830–857 Chapter 31 Disease Management
					843–845 Managing Plant Diseases
					857 Communicating about Horticulture #1, 2
					857 SAE Opportunities #4
					858-875 Chapter 32 Weeds
					874 Thinking Critically #1, 2
					875 SAE Opportunities #3
					876–899 Chapter 33, Pesticide Management
					and Safety
					883–886 Pesticide Labels
					884 A legal Document
					884 EPA Registration Number
					886–887 Pesticide Applicator Certification
					886–892 Pesticide Application
					887 Funding for Safety Programs
					890–891 Toxicity
					898 STEM and Academic Activities #1
					899 SAE Opportunities #2
					924–925 Pests and Disorders Identification Illustrated Glossary
					926–927 Disease Identification Illustrated Glossary
					928–930 Weeds Identification Illustrated Glossary
	1	2	3	4	
C10. Apply principles and practices of sustainable					10 Biological and Environmental Impacts
agriculture to plant production.					70 Thinking Green: Organic Chemical
CRP: Use technology to enhance productivity					Herbicides

		87 Thinking Critically #2
		105–107 Organic and Sustainable Production
		116 Know and Understand #15
		117 Know and Understand #19
		285–286 Soil Structure
		286 Managing Soil Structure
		287 Soil Bulk Density
		297 Thinking Green: Coconut Coir vs. Peat Moss
		299 Thinking Green: Cover Crops
		300 Thinking Green: Mulchmat
		309 SAE Opportunities #1
		324–325 Soil and Tissue Analysis
		325 Green Manures
		326–327 Animal Wastes
		431 Thinking Green: Micropropagation Uses a Sustainable Product
		465 Subirrigation
		465 Thinking Green: Subirrigation Reduces Water Consumption
		476 STEM and Academic Activities #4
		483–485 Nutrients
		485 Organic and Inorganic Fertilizers
		548 Site Selection
		552–561 Sustainable Nursery Production
		553–556 Water Management
		566 Know and Understand #13, 16–20
		575 Drip Irrigation
		723 Retaining Walls
		735–736 Mulching
		748 Benefits (turfgrass)
		772 Thinking Green: Hydromulch
		867 No-Till
		286 Managing Soil Structure

		F	-	-	-	-	
			1	2	3	4	
	C11. Properly harvest, handle and store crops.	ELA: 3, 6, 7, 8, 9	For exa	ample: Yo	u are a wor	ker in an	53–54 Agricultural Inspector
		M: 2, 6	orchar and pa	d, and you ck the frui	ir job is to ł it to ensure	arvest safe	98 Hands-On Horticulture: Postharvest Physiology and Technology 107 Eating Local
			farm to	o store. Ex	plain your p	plan to	107 Harvesting
			your su	upervisor.			119 SAE Opportunities #4, 5
							277 SAE Opportunities #3
							308 STEM and Academic Activities #3
							547 Harvesting (field-grown)
							550 Harvest (pot-in-pot production)
							586–587 Good Agricultural Practices
							586–587 Good Agricultural Practices
							589–593 Postharvest Handling and Storage (vegetables)
							590 Handling
							591–593 Storage
							592 Sanitation
							608–609 Harvest (small fruits)
							616 Harvesting and Storage (tree fruits and nuts)
							623–624 Harvest and Storage (vine fruits)
							628 STEM and Academic Activities #2
							629 SAE Opportunities #4
			1	2	3	4	
D. Understand the proper	D12. Demonstrate proper use, maintenance, and	ELA: 2, 7, 8, 9	For exa	ample: Yo	u are worki	ng for	159–166 Safety Hazards
selection, use and	storage of tools/equipment, to include machinery,		your lo	cal munic	ipality mair	ntaining	168–170 Maintaining Tools and Equipment
equipment that is essential	areas of industry.		public	spaces, in buildings,	and cemet	ks, eries.	330–332 Methods of Fertilizer Application
to plant systems.			Demor	istrate use	e and maint	enance	346–348 Field Seeding
			of the for eac	correct ha h situatio	nd and pov n. while ens	ver tools suring	348–349 Field Nurseries
			person	al safety.	.,		350–351 Plug Production
							351 Mechanical Seeders
							552 Equipment and Supplies Identification
							164–166 Preventing Accidents
1		1					

							 168–170 Maintaining Tools and Equipment 169 Equipment Identification 46–47 Student Resources Inventory 552 Equipment and Supplies Identification 168–170 Maintaining Tools and Equipment 491–492 Containers, Trays, Tags, and Labels 676–681 Containers, Tools, and Mechanics
			1	2	3	4	
E. Understand and apply safety regulations, procedures, and methods to have a safe work environment	E13. Employ emergency procedures as necessary to provide aid in workplace accidents. AAI 8. Health, Safety, and Environment	ELA: 2, 4, 7, 8 M: 2, 15	For exa special where Demon practice people Contine	imple: Yo ist and are a chemica strate app es for you on site. ue to #14	u are a turi e working a al has been propriate s and the o	f spilled. afety ther	<u>154–177 Chapter 6 Worker and Tool Safety</u> 166–167 Workplace Safety Documents First Aid 892–893 677 Safety Note: Floral Knives 886 First-Aid Instructions
			1	2	3	4	
	E14. Implement personal and jobsite safety rules and regulations to maintain safe and healthful working conditions and environments.						157 Safety Health Agencies [(Centers for Disease Control and Prevention (CDC), the National Institute of Occupational Safety and Health (NIOSH), the Occupational Safety and Health Administration (OSHA), and the US Department of Labor] 159–166 Safety Hazards 166–167 Workplace Safety Documents 887 Selecting Personal Protective Equipment 887 Safety Note: PPE 164 Preventing Accidents 164–166 167–168 Practicing Safety 170–172 Labor Laws
			1	2	3	4	
F. Understand and apply design principles to enhance an environment for a variety of purposes.	F15. Create designs using plants that demonstrate an application of basic design elements and principles for: landscaping, floral, farm, and interiorscape CRP: Demonstrate creativity and innovation	ELA: 3, 4, 6, 7, 8, 9 M: 2, 15	For exa reques class de decora aesthet a prede	mple: Yo ted that y esign the g tions so th tically plea etermined	ur principa our horticu graduation nat they ar asing and f I budget. C	l has Ilture e it within reate a	632–635 Landscape Design Steps 632–637 The Design Process 636–637 Drawing Board or Computer-Aided Design

		plan an faculty	nd be prep	pared to sh	are at a	637 Graphics
		laculty	meeting.			637–644 Elements and Principles of Landscape Design
						644–647 Drawing Instruments
						644–648 Tools of Landscape Design
						648 Planning and Design
						652–656 Water Garden Landscape Design
						662 Thinking Critically #1
						664–689 Chapter 25 Floral Design
						666–673 Principles of Element and Design
						673–675 Types of Floral Design
						680 Securing Plant Material in Vases
						684 Hands-On Feature: Increasing the Shelf Life of Bouquets
						718–720 Landscape Design Plans
		1	2	3	4	
F16. Discuss and be aware of advance technology in	ELA: 2, 3, 4, 6, 7, 8,	For exa	ample: Yo	u are a hoi	ticulture	118 Communicating about Horticulture #2
this industry (automation, climate control, CAD,	9	teache	r with a p	reset amou for undati	unt of	241 STEM Connection: Induced Mutations in
	M: 2, 15	greenh	ouse. Wo	rk with yo	ur	Plant Breeding
		studen	ts to dete	rmine the	best	351 Mechanical Seeders
		budget	, and be p	our situation or epared to	on and present	354 Landraces (hybrids)
		to scho	ol admini	stration.		379 Career Connection: Mark Weathington, Arboretum Director
						433 Genetic Diversity
						454 Market Opportunities
						465 Subirrigation
						467 Thinking Green: Energy Efficient Poinsettia Production
						49 Coordinate (method of communication)
						493–494 Seeds (automatic seeders)
						531 Career Connection: Gotham Greens
						65 Presentation
						81 Information Literacy
						88 STEM and Academic Activities #6

			1	2	3	4	
G. Understand and apply the concepts, techniques, and strategies of entrepreneurship/business owner to make sound business decisions	G17. Identify and utilize strategies and techniques to market, price, promote, and sell quality products in order to meet customer needs.	ELA: 2, 3, 4, 6, 7, 8, 9 M: 2, 18, 19	For exa flowers Valentii for the product the sho Continu	mple: You shop and ne's Day s purchase t, and sha p's owner ue to #19	u work in a are prepar ales. Creat and produ re your pla	local ing for e a plan ction of n with	 116 Know and Understand #10 129 Performance Standards 129 Principal Strategy (#7) 129–134 Marketing and Advertising 130 The Marketing and Advertising Process 133–134 Promotion 146 AgEd Connection: Marketing Plan CDE 151 Know and Understand #7 152 STEM and Academic Activities #5 152 Communicating about Horticulture #4 152 STEM and Academic Activities #6 152 Thinking Critically #1 153 SAE Opportunities #3 362 STEM and Academic Activities #5 472 Career Connection: Neil Devaney (3rd paragraph) 496 Greenhouse Crops 539 Mail-Order Companies 567 SAE Opportunities #3 573 2nd paragraph
			1	2	3	4	
	G18. Demonstrate effective communications skills and proper etiquette while assisting customers.CRP: Communicate clearly and effectively and with reason.	ELA: 3, 4, 7, 8 M: 2, 6	For example: You are the crew chief for a local tree company. An employee calls you to say that he has damaged a customer's car in the process of removing a diseased limb. Create a solution that resolves the plan positively for all parties, and communicate this with the customer.				48–49 Coordinate 79 Persuasive Presentations 135–136 Professional Traits and Behaviors
			1	2	3	4	
	G19. Determine cost, profit margins, and financial implications of design or production decisions.						<u>120–153 Chapter 5 Horticultural Business</u> <u>Management</u>

AAI 2. Management						
		1	2	3	4	
G20. Discuss business possibilities and identify the steps in planning a business. AAI 1. Planning	ELA: 2, 3, 4, 6, 7, 8, 9 M: 2, 4, 6, 18, 19	For exa school a small need to acquire equipn attract to pres lender. Contin	ample: You graduate landscapi o create a e funding a nent and r new custo ent your p ue to #21	u are a new who wants ing busines business p and approp naterials, a omers. Be p olan to a loo & 22	v high to start s. You lan, oriate nd orepared cal	<u>120–153 Chapter 5 Horticultural Business</u> <u>Management</u>
		1	2	3	4	
G21. Identify the resources needed for business startup and operation. AAI 3. Finance						<u>120–153 Chapter 5 Horticultural Business</u> <u>Management</u>
		1	2	3	4	
G22. Discuss the options in planning the business future (growth, development, demise).						<u>120–153 Chapter 5 Horticultural Business</u> <u>Management</u> 157 Fair Labor Standards Act (FLSA)
AAI 7. Community Issues						157 United Farm Workers (UFW)
CRP: Act as a responsible and contributing citizen and employee						 170–172 Labor Laws 176 Know and Understand #4 (Activity) 432 Labor and Equipment Costs 19 Community Development 14 Leadership Development in FFA 134 Professionalism
		1	2	3	4	
 G23. Discuss and identify the skills and behaviors of being a business owner /entrepreneur (passion, confidence, self-motivation, tenacity, leadership, management, etc.). CRP: Model integrity, ethical leadership and effective management 	ELA: 3, 4, 5, 7, 8, 9 M: 2, 6	For example: You are a successful landscaper, who is looking to expand his business. You need to hire new employees and manage them effectively. Create a set of interview questions and a probationary evaluation tool.				4–5 Leadership Characteristics 5–9 Develop a Leadership Path 8–9 Leadership Development 14 Officers 18–19 FFA Program of Activities

			Present your ideas to your current employees, and get their feedback.			current edback.	 28 Thinking Critically #1, 2 49–50 Keep Records 134–136 Professionalism 135 Professional Traits and Behaviors 151 Know and Understand #9, 10 176 Thinking Critically #2 476 Communicating about Horticulture #2
			1	2	3	4	
H. Understand the necessary career readiness and employability skills in order to achieve success in today's workplace.	 H24. Discuss and research career options and postsecondary programs within this industry to assist in developing a career plan. CRP: Plan education and career paths aligned to personal goals. 	ELA: 2, , 3, 4, 6, 7, 8, 9 M: 2, 6	For example: You're a high school student determining post- graduation plans. Evaluate your areas of interest and the available options, and create a five year plan Share your plan with the rest of your class.				134–136 Professionalism 136–139 Career Documents 139–143 Job Interviews 144–146 School-to-Career Plan
Please note: all chapters have a section on careers and contain personalized career connections with real professionals in m Refer to the following: Career Connections 38 Beekeeping; 54 Vice President and Manager for Strategic Engagement at AmericanHort; 84 Rizanino Reyes, Garden Blogg Postharvest Professor; 135 Professional Certifications in Horticulture; 147 Leslie Halleck, Horticultural Marketing; 173 Kurt E Dr. Andrea Weeks, GMU, Plant Taxonomist; 242 Joseph Tychonievich, Plant Breeder; 272 Debbie Roos, Sustainable Agricult McCaleb, Erosion Control Specialist; 379 Mark Weathington, Arboretum Director; 442 Ty Strode, Vice President and Market Executive, Greenhouse Sales; 501 Denise Etheridge, Homewood Nursery; 531 Jennifer Nelkin Frymark, Gotham Greens; 563 Alex Ramirez, Design Workshop; 685 Anna Passarelli, Floral Designer; 711 Yuko Frazier, Senior Project Designer, Ambius; 74 750 Todd Lawrence, Golf Course Superintendneti; 773 Dr. Melodee Fraser, Turfgrass Breeder; 823 The Bug Chicks; 853 Tabit Caroers 25–26 Agricultural Leadership Careers; 52–54 Careers (SAE); 82–83 Horticultural Communication Careers; 109 The Green In industry); 146–148 Horticulture Business Careers; 172–173 Horticultural Safety Careers; 190–191 Careers in Folat Taxonom Careers 25–26 Agricultural Leadership Careers; 52–54 Careers (SAE); 82–83 Horticulture; 302–303 Careers in Soil Science; 332 C Seed Propagation; 378–379 Careers in the Propagation; 378–3792 Careers in Rest C						als in many areas of the green industry. In Blogger; 100 Randy Beaudry, MSU Fourt Bland, Landscape Company Owner; 191 griculture Extension Agent; 304 Melanie Marketing Director; 472 Neil Devaney, Account Ins; 563 Alan Erwin, Panther Creek Nursery; 659 Jus; 749 Andy Smith, Erosion Control, EcoTurf; 3 Tabitha West, Cedar Valley Nursery; 871 Dr. eeen Industry; 112–113 Careers (horticulture konomy; 218 Careers in Plant Biology; 241–242 ; 332 Careers in Plant Nutrition; 358 Careers in in Grafting and Budding; 440–442 Careers in nty-first century horticulture); 561–562 Design; 684–685 Careers in Floriculture; 710– ated Pest Management; 823 Careers Related sticide Management and Safety <u>2–29 Chapter 1 Agricultural Leadership</u>	
	leadership, democratic principles and social responsibility by participating in activities/eventsM:officer and are part of a team that is looking to recruit new members.6–7 Become Self-Confident					6–7 Become Self-Confident and Healthy	

offered through FFA and other professional	Create an advertising campaign to	8–9 Leadership Development
organizations.	attract your target audience, and share your plan with the rest of	18 FFA Program of Activities (personal growth)
CRP: Work productively in teams while using cultural	your team.	30–59 Chapter 2 Experiential Learning: SAE
global awareness.		44 Investigate (personal interests)
CRP: Attend to personal health and financial		38–40 Research and Experimentation SAF
wellbeing.		58 STEM and Academic Activities #1
		60–89 Chapter 3 <i>Communication and</i>
		Information Literacy in Horticulture
		69–73 Critical Thinking and Research
		82 Independent Learning (personal
		88 STEM and Academic Activities #2
		112 112 Caroare
		112–113 Careers
		112–113 Horticulture Organizations
		142 Career Connection: Job Interview Practice Questions
		144–146 School-to-Career Plan
		146–148 Horticulture Business Careers
		4–5 Leadership Characteristics
		8–9 Leadership Development
		18 FFA Program of Activities
		19 Community Development
		28 Know and Understand #12
		29 STEM and Academic Activities #4, 5
		29 SAE Opportunities #3
		82 Social Responsibility
		108 Community Supported Agriculture (CSA)
		223 SAE Opportunities #1
		476 Communicating about Horticulture #2
		14 Officers
		18–19 FFA Program of Activities
	1	