

Scope and Sequence: ESY Pittsburgh Lessons

UNIT 1: SENSES & SURVIVAL *We are part of the natural world.*

Week of	Class Limit	Limit Factor	Activity	Learning Goal
Sep 3		N/A	Scavenger Hunt—Fall	What are some different ways humans use plant materials? Map skills, getting comfortable in the garden space.
Sep 10	2	48 popcorn ears: 1/student	Harvesting Produce: Tomato, Carrot, Squash, Popcorn	Managed risks: How do we ensure our safety while harvesting produce and having fun in the garden?
		N/A	Tasting Apples (Indoor option)	What senses do we use when we eat? What are the five taste sensations?
	1	1 wheat bed	Harvesting Wheat	Agriculture is a technology humans have developed in response to our dependence on plants. Wheat is one example of this.

UNIT 2: PATTERNS & PREPARATION *Seeing patterns helps us prepare for the future.*

Week of	Class Limit	Limit Factor	Activity	Learning Goal	Mini Unit
Sep 17		N/A	Charting Seasonal Change: Temperature, Day Length, & Sun Position	What changes do we observe as seasons change?	Seasonal Change
	4	# beans	Saving Seeds: Tomato, Amaranth, Bean, Sunflower	Why do plants make seeds? Why do we save seeds?	
Sep 24	5	1 bed per class	Broadcasting Cover Crop <ul style="list-style-type: none"> • Three Sisters & Ground Cherry • Potato & Sweet Potato 	How do we prepare the garden for next season? (Cover Crops)	
	1	1 bed per class	Overwintering Spinach	What can we plant in the garden in the fall?	
Oct 1	4	# red tomatoes	Sun Drying: Tomatoes and Peppers	Why and how do we preserve food?	

Week of	Class Limit	Limit Factor	Activity	Learning Goal	Mini Unit
	4	cauliflower and beets	Pickling: Cauliflower and Beets		
		Wheat	Threshing & Winnowing	How is grain processed into foods we eat daily?	
Oct 8		N/A	Measuring Sun Position: Morning to Evening	What is the relationship between the angle of the sun and the temperature outdoors?	
		N/A	Measuring Sun Position: Fall to Winter		
Oct 15	2	# herb leaves	Making Tea: Lemon Verbena and Mint	Which plants thrive in warm temperatures? Which plants thrive in cool temperatures?	
Oct 22		N/A	Migration and Hibernation: Birds and Worms	How do animals prepare for and survive winter?	
		N/A	The Life Cycle of a Plant	How do plants grow?	
Oct 29	4	4 cabbage heads	Making Coleslaw (or Fall Salad)	How do plants survive the winter? What advantages and disadvantages do bulbs have compared to other seeds?	
	1	at least one garlic clove or tulip bulb per student	Planting Fall Bulbs		
Nov 5	4	48 popcorn ears: ½ per student	Making Popcorn and Butter	How do popcorn kernels pop? How do we make butter from cream? How do states of matter apply?	Changes in Food
	1	1 class per day	Baking in a Solar Oven: Winter Squash	How does raising the temperature of a food affect it?	
Nov 12		N/A	Making Applesauce	Food transformations. Eating together as a classroom community.	
		1 brassica bed	Removing Fall Crops: Brassicas	How do we prepare the garden for next season? (Removing Pest Habitat and Spent Plants)	
Nov 19	THANKSGIVING BREAK THANKSGIVING BREAK THANKSGIVING BREAK THANKSGIVING BREAK THANKSGIVING BREAK				

UNIT 3: CULTURE & COMMUNITY *Food customs are the adaptation of a community to its place.*

Week of	Class Limit	Limit Factor	Activity	Learning Goal	Mini Unit
Nov 26		N/A	Carrot Apple Salad : Winter Cooking Intro	Learn how to safely use cooking tools and eat together as a classroom community	
Dec 3		N/A	Tabbouleh Salad: Food Heritage	Middle East map focus, Middle Eastern farmers, bulgur and quinoa, herbs, mezze	
Dec 10		N/A	Tabbouleh Salad: Cooking and Community	Middle East map focus, Middle Eastern farmers, bulgur and quinoa, herbs, mezze, preparing vegetables, teamwork, table manners	
Dec 17	WINTER BREAK WINTER BREAK WINTER BREAK WINTER BREAK WINTER BREAK WINTER BREAK WINTER BREAK WINTER				
Dec 24	BREAK				
Jan 8		N/A	Rice Noodle Salad: Food Heritage	East Asia map focus, Chinese farmers, rice ecosystem, grains around the world	
Jan 15		N/A	Rice Noodle Salad: Cooking and Community	East Asia map focus, Chinese farmers, rice ecosystem	
Jan 22		N/A	Tikil Gomen w Injera: Food Heritage	Ethiopian map focus, types of bread, use of spices	
Jan 29		N/A	Tikil Gomen w Injera: Cooking and Community	Ethiopian map focus, types of bread, use of spices	
Feb 5		N/A	Groundnut Stew: Food Heritage	Africa map focus, African farmers, yams, peanuts (though none in recipe), crushing seeds	
Feb 12		N/A	Groundnut Stew: Cooking and Community	Africa map focus, African farmers, yams, peanuts (though none in recipe), crushing seeds	

Additional Recipe Option: ‘Polenta w Beans and Squash’ (or other Corn, Beans and Squash recipes to use The 3 Sisters crops)

UNIT 4: PLANNING & DESIGN *Each part of a system affects every other part.*

Week of	Class Limit	Limit Factor	Activity	Learning Goal	Grades
Feb 19		N/A	Plant Needs	What do plants need in order to survive?	K-6
		N/A	What Grows Here (and When)?	Tropical and Temperate Plants	2-6
		N/A	Garden Schedule: Lettuce, Turnips, and Peas	Cold and warm season crops	3-6
Feb 26		N/A	Crop Rotation	ID Plant Families (compare seeds): crop rotation	3-6
		N/A	Lima Bean Jar Experiment	Planting conditions comparisons	K-6
		N/A	Determine Timing of Plantings	Work backwards to know when to plant crops for spring salad	2-6
Mar 5		N/A	Tiny Gardens Giant Farmers	What factors influence where we decide to plant each crop? (sun exposure, timing, spacing, crop rotation)	2-6
		N/A	Plant Spacing	Visualize root zone and mature size of plant. Planning ahead.	K-6
		N/A	Seed Quantity: Lettuce, Turnips, and Peas	How much produce can we expect from our garden?	3-6
			Pruning Raspberries		

UNIT 5: SOIL & ECOLOGY *Energy moves through a system to maintain equilibrium.*

Week of	Class Limit	Limit Factor	Activity	Learning Goal	Grade
Mar 12		N/A	Needs of a Plant	Components of healthy plant growth	K-6
		N/A	A Farmer Builds the Soil	A farmer builds the soil. Agriculture is a technology humans have developed in response to our dependence on plants.	2-6

Mar 19	N/A		Rocks and Minerals: Soil Texture (Growing Food 194) & Perc Through the Pores (PFLP)	Inorganic components of soil and rock erosion	K-6
	N/A		What Makes Good Soil: Start wheatgrass in sand, compost, and mix	Soil: organic and inorganic matter	2-6
	3	pea and clover beds	Tool Introduction & Safety +Aerating Soil: pea and clover beds	Soil aeration and compaction	K-6
	N/A		Plant Spacing	Planting seeds and transplants with enough space for them to grow to maturity.	K-6
Mar 26	N/A		Erosion: Earthgrippers (GrowLab 67) & Till We or Won't We (PFLP)	Healthy soil makes healthy plants; healthy plants keep soil healthy.	
	1	lettuce bed	Row Seeding Lettuce	Partnering with natural processes vs. importing inputs: Fertilizer vs. compost	
	1	broccoli bed	Transplanting Broccoli	Partnering with natural processes vs. importing inputs: Fertilizer vs. compost	1-6
		# of Kits	Mushrooms! Fungus Among Us (GrowLab 210)	Fungus as a decomposer	4-6
	N/A		What Grows Where (and When)?	Tropical vs. Temperate Climates for plant growth	3-6

Additional Anytime Outdoor Lessons: Composting -From Apple Cores to Healthy Soil (PFLP 149), Classroom Composting (Growing Food 130) or Compost Relay Race (K-6)

Rainy Day Lesson: Wiggling Worms at Work (Worm Bin) (K-6)

UNIT 6: FOOD & TECHNOLOGY *Technology is part of a system bigger than itself.*

Week of	Class Limit	Limit Factor	Activity	Learning Goal	Mini Unit
Apr 2	SPRING BREAK SPRING BREAK SPRING BREAK SPRING BREAK SPRING BREAK SPRING BREAK SPRING BREAK SPRING BREAK				Plant and Animal Inter-dependance
Apr 9		N/A	All Food Begins with a Plant Lunchtime Favorites (PFLP 103)	All food begins with a plant. Humans need plants. Plants are the food for animals we eat and the ingredients of processed food.	
		N/A	Scavenger Hunt - Spring	Crop Rotation (install plant markers)	

Week of	Class Limit	Limit Factor	Activity	Learning Goal	Mini Unit
	1		Weeding: Spinach, Peas, Lettuce	Plants need humans	
	1		Till Turnip Bed	Air is important to soil health and plant growth.	
	1		Using Row Cover: turnips	Plants need humans	
Apr 16	N/A		Starting Seeds: tomato (dust with vermiculite)	Soil-borne diseases indoors	
	2		Planting Potatoes: & Transplant Leeks, Sweet Alyssum (install plant markers)	Soil-borne diseases and crop rotation	
Apr 23	N/A		Identifying Insects: Investigating Insects (PFLP 273)	Pests and Beneficials: explore the garden with hand lenses. Look for bugs and flowers.	
			Honeybees!	How do honeybees pollinate and what are their lives like?	
	2	Grains, Tomato	Turning Under Cover Crop	Understanding the full cycle of cover crops	
May 1	1		Dissecting Tulips	What are the parts of a flower?	
	N/A		Flowers and their Pollinators (Gardening With Children 68)	How are different plants suited to different pollinators?	
			Thinning Turnips: Remove Row Cover, Sauté		
May 8			The Air Cycle	How are plants related to the air we breathe?	
			Seed Dispersal/Saving	How do animals (including humans) disperse seeds?	
	3	Pepper, Three Sisters	Turning Under Cover Crop		
	1		Planting Wheat	Plant Domestication & Improving Plant Varieties	
			Starting Sweet Potato Slips	Plant Propagation: division, cutting, grafting	
May 15	3	Ground Cherry, Parsley, Tomato, Marigold, Strawflower	Preparing to transplant: harden off seedlings and start compost tea	Striking a balance between stress and excess (indoors is windless, ample water, gentle sun, even temperature)	Limits: land and diet, carrying capacity
	1		Planting Three Sisters: Corn	Three Sisters: good for the land, good for the people	

Week of	Class Limit	Limit Factor	Activity	Learning Goal	Mini Unit
			Sprouting Mung Beans	Conditions for germination, Parts of a seed	
May 22			Making salad: lettuce, peas, and turnips Celebrating Plant Parts (Growing Food 72)	Biodiversity: the land needs a range of crops, and so do we.	
	2	8 Tomato, 8 Ground Cherry	Fertilizing Transplants: Tomato & Ground Cherry	Regenerative Farming: letting the land put limits on the amount of food we produce (and eat)	
	1	Pepper	Companion Planting: Parsley, Marigold, Strawflower	Companion planting: The Three Sisters aren't the only companions	
	1		Planting Three Sisters: Squash	Three Sisters: good for the land, good for the people	
May 29	1	Tomato	Companion Planting: Basil	Companion planting: The Three Sisters aren't the only companions	
	1	12 Pepper	Fertilizing Transplants: Pepper	Regenerative Farming: letting the land put limits on the amount of food we produce (and eat)	
	1		Planting Three Sisters: Beans	Three Sisters: good for the land, good for the people	
			Making salad: lettuce, peas, and turnips Celebrating Plant Parts (Growing Food 72)	Biodiversity: the land needs a range of crops, and so do we.	
Jun 5	1		Pruning tomatoes (Install stakes; tie up)	Is bigger better?	
	1		Making Scape Pesto		
			Spring Salad Celebration: lettuce, peas, and turnips	Biodiversity: the land needs a range of crops, and so do we.	
			Root Sweet Potato Slips		
Jun 12	2	2 half beds per class	Removing Spring Crops: Peas, Broccoli	When it can't feed us, it can feed the soil.	
	1	1 bed	Installing Irrigation (and mulch): tomatoes	Water conservation; resourcefulness	
			Transplanting Sweet Potato		

Any Time Outdoor Lesson: Charting Weather Data daily or weekly

***Lessons in bold denote activities central to garden growth and production**, lessons in plain type are supplemental to garden production

Books/Curriculum Referenced Above

PFLP – Project Food, Land, People. “Educating about how Agriculture, Environment and People connect!” Curriculum can be purchased via their website: www.foodlandpeople.org

Growing Food: Linking Food and the Environment out of the Teachers College Columbia University. Available online.

Gardening with Children out of the Brooklyn Botanic Garden. Available online.

GrowLab by Eve Pranis. Available online.