# GRADE 8 Garden



### SCOPE & SEQUENCE



#### GRADE 8 STANDARDS

At the end of Grade 8, students will be able to:

- Demonstrate mastery of garden planning and maintenance, seasonal planting, post-harvest techniques, basic business skills, and plant identification.
- Demonstrate ability to resolve watering, weeding, harvest, and distribution challenges that exist in a garden.
- Demonstrate knowledge of and explain the proportional relationship of soil components.
- Demonstrate understanding of weather, seasonality, and succession planting.
- Demonstrate ability to analyze differences between locally grown and imported food.
- Demonstrate knowledge of urban garden design.

## GRADE 8 | FALL

Each activity described below should be designed to last approximately 45 minutes.

Lesson # & Title

Topic

Content Learning
Objective(s)

**Suggested Lesson Activity** 

Life Skills Learning Objective(s)

Connections to Kitchen Lessons Possible Extensions Academic Standard Connections

Health Standard Connections

# START THE YEAR Schoolwide Garden Work Party with Families/Local Community

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1. Welcome to the Garden!	Personal and Community Life Skills (PLS and CLS)	GFS.8.1 Understand physical changes in the garden environment.	Have students share their names. Explore Garden Agreements established in Grade 7 Lesson #1: Welcome to the Garden! together and ask if anyone would like to suggest any updates. Review Personal and Community Life Skills. Then have students elaborate, practicing these agreements as they walk through the garden reviewing the plans they made last year for a food business, and checking on the crops they planted in Grade 7 Lesson #14: Planting for Our Business.	PLS.1-6  CLS.5  Students participate in the development of agreed upon protocols and behaviors for the garden and kitchen environments.	Students will make the product for the business planned here in Kitchen Lesson #2: Preparing the Product for Our Business.	Classroom: Illustrate the life cycle of the plants that you have seen in the garden so far (include dates).	Social Studies: Economics.  NGSS.7.LS1.B Growth and Development of Organisms.	
2. Harvesting for Our Business	Business Planning (BP)	BP.8.1 Demonstrate the ability to run a food business project.  GTE.8.1-3 Garden Tools and Equipment	Review safe tool use and proper harvesting and handling techniques and why these are so important. Have students calculate the amount of produce they need in order to make their first batch of the product for their food business. Then harvest produce for the business project and bring to the kitchen to store for use in Kitchen Lesson #2: Preparing the Product for Our Business.	PLS.1 Students are self-aware and show respect for their own needs, the needs of others, and the environment. They practice safe and conscientious behaviors in the garden and kitchen environments.	Students will make the product for the business planned here in Kitchen Lesson #2: Preparing the Product for Our Business.	Community: Interview local chefs on how they calculate how much produce they'll need for their menu each day.	Social Studies: Economics.  CCSS.MATH. CONTENT.8.EE.C.8.C Solve real-world and mathematical problems leading to two linear equations in two variables.	

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3. Community Support for Our Business	Garden Planning and Maintenance (GPM)	GPM.8.1 Identify and utilize community resources available to support business project.	Have students brainstorm, exploring all the possible ways the community could support their project, such as through donations of goods or services; promoting the business; and the like. Have students explore the pros and cons of each strategy, and then select a few strategies to pursue as a team. Hand out journals that students will use to reflect at the end of each lesson. Have students elaborate, recording 3 action steps for inviting community involvement in their business project.	PLS.6 Students actively seek creative and resourceful solutions.	In their outreach to community members, have students highlight skills they have learned in the garden or the kitchen to explain the value of the program to potential supporters.	BAM! Box: Have students survey family or community members about their business plan to gather feedback on the concept, pricing, packaging, etc., before launching.	Social Studies: Economics.  CCSS.ELA- LITERACY.W.8.4  Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	

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4. Promoting Our Business	Business Planning (BP)	BP.8.1 Demonstrate the ability to run a food business project.  BP.8.3 Create a marketing, outreach, communications plan for project.	Have student teams work together to promote their product. Have them explore through discussion how to attract customers attention; how to convince customers to purchase; how to convey the nutritional benefits of the product; how to distinguish the product from others; and the like. Have students elaborate by using these ideas to create an advertisement for their product, either on paper or online.	CLS.2 Students cooperate and communicate well with each other.	In their marketing materials, highlight both kitchen and garden connections, with phrases such as "Featuring tomatoes grown in the Middle School Garden and prepared in small batches by Grade 8 Students at Mesa Middle School."	Community: Explore other advertisements for food products in your community. Discuss what elements make them effective or ineffective for your audience.	Social Studies: Economics.	National Health Education Standard 2: Students will analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors.

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5. Launching Our Business	Business Planning (BP)	BP.8.1 Demonstrate the ability to run a food business project.	Have each student choose a department for which they will share in the responsibilities, such as packaging, delivery, marketing, sales, etc. Then have them work together to elaborate on their learning by launching the project, for example by hosting a farm stand in the school garden or selling preserves at pick up time. Ensure they track records of expenses and profit each time they make and sell their product.	CLS.3 Students understand and apply principles of fairness, equity, and democracy in the garden and kitchen environments.	As students launch their business, reflect together on how the kitchen and the garden are interdependent, and both were essential to make this business happen.	Community: Interview people in the community that work in these lines of production (packaging, delivery, marketing, sales) preferably in a food business. Ask them for their top three best practices that you should consider in your work.	Social Studies: Economics.  NGSS Science and Engineering Practice: Developing and Using Models.	

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6. Life Cycle of a Plant	Plants (P)	P.8.1 Identify and describe structure and function of edible plants.  P.8.2 Identify and describe full cycle of a diversity of plants in the garden.	Have students elaborate on their learning about life cycles in plants by tracing the entire cycle of the life of a plant they featured in their product. Have them create posters depicting the life cycle from seed to plant to seed, with scientific illustrations of each phase. Have them label each plant part in their illustration, showing how it grows and changes over time. Alternatively, have students take photos of their plants throughout their life cycles and then use these photos to tell a story of the plant from seed to plant to seed again.	PLS.6 Students actively seek creative and resourceful solutions.	In the garden, have students identify and enjoy edible seeds, sprouts, full grown plants, and flowers. Work with them to connect these edible foods to the life cycle of the plant itself.	Classroom: Write and illustrate a narrative story of your plant growing up with your plant as the main character, to read to students at the elementary school.	NGSS.7.LS1.B Growth and Development of Organisms.  VA:Cr2.3.8a Select, organize and design images and words to make visually clear and compelling presentations.		

			GR Each activity described below sl	ADE 8   WINTE		5 minutes.		
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7. Making Six Plant Part Snacks	Plants (P)	P.8.1 Identify and describe structure and function of edible plants.	Engage students by having them review in pairs what they know about the 6 plant structures (roots, stems, leaves, flowers, fruits, and seeds). Have students review safe food harvesting and handling practices. Then elaborate by challenging them, in teams, to harvest, design, and prepare simple snacks including each of the plant parts. Explain that they might make a salad, a wrap (using a lettuce leaf), a kabob, or the like. You can provide a dressing or dip, although it's not necessary. Have students make enough for the class to taste. Then rotate through, having students present and then taste each snack item. This can be a competition, with each student voting for their favorite snack (not made by their team).	PLS.6 Students actively seek creative and resourceful solutions.	Ask students to describe the flavors and textures of their snacks using Culinary Flavor and Texture concepts and terms learned in their tasting activities in the kitchen lessons (sour, sweet, salty, bitter, crunchy, mealy, etc.)	Classroom: Have students compare the structures of plants to those of the human body. How are they similar? (Sample answer: We have have bones to hold us upright, and plants have stems to hold them upright). How are they different? (Sample answer: Plants have leaves that photosynthesize to create food; we have mouths to eat food from plants and animals, because we can't photosynthesize to produce our own food).	NGSS Crosscutting Concept: Structure and Function.	National Health Education Standard 7: Students will demonstrate the ability to practice health- enhancing behaviors and avoid or reduce health risks.

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	usiness Janning (BP)	BP.8.1  Demonstrate the ability to run a food business project.  BP.8.2  Understand Profit/Loss for project.	Look at records of expenses and sales for business project together, and discuss why record keeping and analysis is important to business.  Compare with projections from Grade 7. Challenge students to make explanations for discrepancies. To elaborate, have them brainstorm how to improve the business and maximize profit, for example by expanding the customer base, securing more donations, tweaking the recipe for the product, etc.	PLS.5 Students develop the ability to make informed and responsible decisions.	In this garden lesson, discuss expenses in both the garden and the kitchen for this project. Compare time spent growing the produce with preparing it. Discuss the role of farmers and chefs in preparing a product for market.	Community: Ask local farmers how they determine their expenses —how do they account for their time, energy, and natural resources. Further, ask what options they have for increasing their income (markets, restaurants, wholesale, etc).	Social Studies: Economics.  CCSS.MATH. CONTENT.8.EE.C.8.C Solve real-world and mathematical problems leading to two linear equations in two variables.	

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9. Garden Caretaker Station Rotation	Garden Planning and Maintenance (GPM)	GPM.8.2 Resolve watering, weeding, harvest and distribution challenges that exist in a garden.  S.8.1 Describe soil components and explain the proportional relationships.  GTE.8.1-3 Garden Tools and Equipment	Have students elaborate on their garden and business learning by dividing into teams to implement next steps to keep their garden growing and business going. For example they may choose to prune back berries, test and amend soil, order new seeds, or the like.	PLS.3 Students cultivate honest and responsible behaviors that contribute to the learning of the community.	In this garden lesson, discuss how to modify the business from what they launched in the fall to reflect produce that is in season now, and/or will be in season in the spring.	Community: Recruit members of the community to assist with next steps.	Social Studies: Economics.  NGSS.8.LS1.B Growth and Development of Organisms.	
10. Year Round Garden Planning	Weather and Seasons, Climate and Geography (WSCG)	WSCG.8.1 Utilize knowledge of weather and seasonal changes to create a 12 month planting calendar.	Provide student teams with blank calendars and guide them in elaborating on what they have learned over their years in the garden and kitchen to make a plan for what to plant and harvest in each month or season throughout the year.	CLS.1 Students demonstrate problem solving and resolve conflict as a team.	In this garden lesson, make connections between the year round garden calendar they made and the seasonal menu they designed in Kitchen Lesson #10:  My Food Cart, Part 3.	Cafeteria: Present calendar to the cafeteria staff and explore options to taste test harvested produce in the cafeteria each month.	NGSS.8.LS1.B Growth and Development of Organisms.  VA:Cr2.3.8a Select, organize, and design images and words to make visually clear and compelling presentations.	

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11. Observing Plant Life Cycles	Plants (P)	P.8.2 Identify and describe full cycle of a diversity of plants in the garden.	Have pairs of students each select a plant. Have them explore its growth, tracking the development of that plant over time in their journals. For this first time, have them draw a scientific illustration of the plant, including the date. Have them label each structure present, and record 3 predictions about how it will look different in a month.	PLS.2 Students are able to express empathy and caring for themselves, others, and the environment.	In the garden, have students identify and prepare a snack that incorporates plants at different stages of their life cycles, such as a salad with seeds and sprouts.	Community: Have students look for and illustrate or photograph plants at different stages of their life cycles (seeds, sprouts, dead leaves, etc).	Social Studies: Economics.  CCSS.MATH. CONTENT.8.EE.C.8.C Solve real-world and mathematical problems leading to two linear equations in two variables.	

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12. Local versus Imported Foods	Garden and Food Systems (GFS)	GFS.8.3 Describe and characterize the differences between foods grown locally and those imported from other parts of the United States and the world.	Engage students by introducing different journeys foods can take to get to the plate. Explore and explain the differences together by researching the differences in appearance, freshness, nutrition, and the environmental impact between foods grown locally and those imported from other parts of the United States and the world. Then elaborate on the ideas researched by conducting a comparative taste test between a food grown locally; another sample of the same crop imported from another part of the United States; and a third sample imported from another country.	PLS.5 Students develop the ability to make informed and responsible decisions.	As students prepare foods in the kitchen, have them identify which ingredients are local and which are imported.	Community: Interview farmers market customers about why they choose to buy locally.	Social Studies: Economics.	National Health Education Standard 1: Students will comprehend concepts related to health promotion and disease prevention to enhance health.

	GRADE 8   SPRING  Each activity described below should be designed to last approximately 45 minutes.									
Lesson # & Title	Topic	Content Learning Objective(s)	Suggested Lesson Activity	Life Skills Learning Objective(s)	Connections to Kitchen Lessons	Possible Extensions	Academic Standard Connections	Health Standard Connections		
13. Planning Our Gift to the Garden	Garden and Food Systems (GFS)	GFS.8.1 Understand physical changes in the garden environment.	Each class in Grade 8 will decide upon and install a parting gift to the garden. They will use profit generated from their student-run business to purchase materials for the gift. Have students explore options, such as a bean teepee, a shaded gathering area, or a worm bin. If necessary have students assess the soil in the areas they are considering. Explain how to assess the physical impact of their installation (shade it may cast; impacts on drainage, etc.) Then have students elaborate, assessing these elements for various potential gifts to the garden.	PLS.6 Students actively seek creative and resourceful solutions.	For each proposed gift to the garden, discuss not only benefits in the garden, but also benefits in the kitchen (i.e. a bean teepee will provide a good source of beans for when the students study proteins).	Classroom: Practice engineering and design skills by drafting models of potential gifts and where they will exist in the garden space.	VA:Cr2.1.8a Demonstrate willingness to experiment, innovate, and take risks to pursue ideas, forms, and meanings that emerge in the process of artmaking or designing.  CCSS.MATH. CONTENT.8.EE.C.8.C Solve real-world and mathematical problems leading to two linear equations in two variables.			

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	den and described Systems (Components and explain the proportional relationships.)  GFS.8.1  Understand physical changes in the garden environment.  S.8.1  Describe soil components and explain the proportional relationships.	Have student teams share the ideas they generated in Lesson #13: Planning Our Gift to the Garden. Have them elaborate on their learning by discussing pros and cons of each one. Then have them vote to identify the best gift to the garden and a good location for it.	PLS.6 Students actively seek creative and resourceful solutions.	The funds used to purchase this gift were generated by students by selling a product they made in Kitchen Lesson #2: Preparing the Product for Our Business.	Classroom: Collect data on votes from each Grade 8 class to combine into a bar graph to show the overall vote.	CCSS.ELA- LITERACY.SL.8.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.  CCSS.MATH. CONTENT.8.EE.C.8.C Solve real-world and mathematical problems leading to two linear equations in two variables.	

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15. Garden Caretaker Station Rotation	Garden Planning and Maintenance (GPM)	GPM.8.2 Resolve watering, weeding, harvest and distribution challenges that exist in a garden.	Divide into 3 teams. Have each team elaborate on their garden learning to date by doing each of the following for 10-15 minutes and then rotate:  • Put down mulch or another form of weed prevention.  • Check the plants to determine what is ready for a succession planting and plant that.  • Work together to identify other garden needs, such as crops that need to be covered to protect from pests, fences or irrigation that need mending, etc.	PLS.1 Students are self-aware and show respect for their own needs, the needs of others, and the environment. They practice safe and conscientious behaviors in the garden and kitchen environments.	As students complete garden tasks, reflect on how this caretaking supports the kitchen and their garden/kitchen business.	Community: Offer to visit a local community garden to implement the same tasks for their garden.	NGSS.8.LS2.A Interdependent Relationships in Ecosystems.  CCSS.ELA- LITERACY.SL.8.1 Engage effectively in a range of collaborative discussions (one- on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.	

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16. Installing Our Gift to the Garden	Garden and Food Systems (GFS)	GFS.8.1 Understand physical changes in the garden environment. GTE.8.1-3	Review safe and proper use of any relevant tools and demonstrate use of any new tools. Then have them elaborate upon their learning by building and installing the garden gift together. You can convert measurements into metric units to reinforce metric conversions they did in Kitchen Lesson #16: Egg Drop Soup. If there's time, work with your students to prepare to present their garden gift to younger grades in Lesson #17: Presenting Our Gift to the Garden.	CLS.1 Students demonstrate problem solving and resolve conflict as a team.	Have students discuss how their work in the kitchen (making the product to sell in their food business) allowed them to generate the funds for this garden gift. Using this as a jumping off point, brainstorm all the ways the garden and kitchen activities support one another.	Community: Invite community volunteers in to help build and install the garden gift, if relevant.  Classroom: Take photos of the building process, and then have students create a book to accompany the gift with photos and a description of their garden gift, the intentions behind it, and the process of building and installing it.	CCSS.ELA- LITERACY.SL.8.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.  VA:Cr1.1.8a Document early stages of the creative process visually and/or verbally in traditional or new media.	

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17. Presenting Our Gift to the Garden	Garden and Food Systems (GFS)	GFS.8.1 Understand physical changes in the garden environment.	Invite younger classes to the garden and have the Grade 8 class elaborate upon their learning by presenting their gift, explaining why they chose it, how it changes the garden landscape, and how they suggest it be cared for over time.	CLS.2 Students cooperate and communicate well with each other.	In presenting the garden gift to younger grades, make any relevant connections to the kitchen, such as "This is a teepee where you can grow beans to cook and use in burritos, hummus, bean salads and more!"	Community: Invite families and other community members in for a "ribbon- cutting" ceremony to celebrate this new addition to the garden.	CCSS.ELA- LITERACY.SL.8.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.	
18. Garden Reflections	Community and Personal Life Skills (CLS and PLS)		Guide students in finding a Magic Space and reflecting on what they have learned in their garden and kitchen classes. Lead a closing circle in which each student can elaborate on their learning by sharing something they have learned that they hope to bring with them into their lives. Then ask them to share something about working together for which they are grateful.	CLS.2 Students cooperate and communicate well with each other.	At the end of Kitchen Lesson #18: Preparing Food for the Feast Around the World, have students conduct a similar reflection, guiding students to consider life lessons they have learned in the kitchen.	Classroom: Write a letter to the rising Grade 8 class presenting the gift and reflecting on what they can look forward to next year	NGSS.8.LS1.A Structure and Function.  CCSS.ELA- LITERACY.SL.8.1 Engage effectively in a range of collaborative discussions (one- on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.	