

TWIGS Curriculum Standards (Grades K-6)

Teams with Intergenerational Support: Youth Gardening and Healthy Eating (TWIGS) was published before the creation of Next Generation Science Standards. TWIGS remains a widely used curriculum that supports stakeholder efforts in supporting gardening and nutrition through educational engagement that fosters new skills, knowledge, group collaboration, and social responsibility. This curriculum aims to provide an intergenerational experience by inviting youth, teens, adults, and seniors to work together to achieve the learning objectives.

How to Use these Standards:

TWIGS was designed to be implemented as individual lessons depending on the interest of the teacher and the youth. The lessons are easily modified depending on the target audience and can be implemented in a formal classroom setting or an informal learning environment.

If a standard is marked with a filled circle (●), it indicates that at least one of the lessons listed fully fulfills the standard. This includes only lesson activities and not additional activities, which may provide further application for the standard.

If a standard is marked with an open circle (○), it means that the lessons could meet the standard with some modification to suit the grade level. Specifically, lessons that contain an open circle typically have additional activities or lesson activities that can meet the standard with minor modifications.

If a standard is marked with a **bolded** grade level (**K**), it indicates that at least one of the lessons listed fully fulfills the standard. This includes only lesson activities and not additional activities, which may provide further application for the standard.

If a standard is marked with an underlined grade level (K), it means that the lessons could meet the standard with some modification to suit the grade level. Specifically, lessons that contain an underline will typically have additional activities or lesson activities that can meet the standard with minor modifications.

If the entire column is marked with a dash (-), it indicates that none of the lessons in the curriculum fulfills the standard.

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This material is funded through a joint agreement among the USDA/FNS, CDSS CalFresh Healthy Living Section, UC Davis and the UC Cooperative Extension (UCCE). These institutions are equal opportunity providers and employers. CalFresh Food provides assistance to low-income households and can help buy nutritious foods for better health. For information, call 1-877-847-3663.

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(Grades K-6)

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TWIGS Curriculum Standards (Grades K-6)

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TWIGS Curriculum Standards
(Grades K-6)



Next Generation Science Standards (K-2)	Grade Level*	Garden Activity Lessons															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
LS1: From Molecules to Organisms: Structures and Processes	Kindergarten	○	●	●	●	●	●	○	●	○	●	●	●	○	○	○	○
	First	○											●	○			
LS2: Ecosystems: Interactions, Energy and Dynamics	Second			●	●	●	●		●		●	○	○	○			
LS3: Heredity: Inheritance and Variation of Traits	First	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LS4: Biological Evolution: Unity and Diversity	Second	○	○	●		○	○		●		●	○	●	●	●		
PS1: Matter and its Interactions	Second		●		●	●		○			●						
PS2: Motion and Stability: Forces and Interactions	Kindergarten							○									
PS3: Energy	Kindergarten	○	●	●	●	○	●										
PS4: Waves and their Applications in Technology for Information Transfer	First	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS1: Earth's Place in the Universe	First	●		●			○		○			○					
	Second		○				○				○						
ESS2: Earth's Systems	Kindergarten	○		○	○		○	○	●		●	○	●		○		
	Second	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS3: Earth and Human Activity	Kindergarten	○	○	●	●	○					○		○	○	●		
ETS1: Engineering Design (Standard encompasses all grade levels)	K-2	●		○		○		●	○		○	○					

*Only grade levels to which the standards apply are listed

TWIGS Curriculum Standards
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Next Generation Science Standards (3-5)	Grade Level*	Garden Activity Lessons															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
LS1: From Molecules to Organisms: Structures and Processes	Third				○						○						
	Fourth	○	●	○	○	○	●		●	○	○	●	●	●	●	●	○
	Fifth	●	○	○	○	○	○		●		○					○	
LS2: Ecosystems: Interactions, Energy and Dynamics	Third													○			
	Fifth	○	○	○		○			●		●			○	○	○	
LS3: Heredity: Inheritance and Variation of Traits	Third								○			○	○	○			
LS4: Biological Evolution: Unity and Diversity	Third	○	●	●	○		○		○			●	●	●	●	○	
PS1: Matter and its Interactions	Fifth		●		○	○											
PS2: Motion and Stability: Forces and Interactions	Third	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fifth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS3: Energy	Fourth										○						
	Fifth										○						
PS4: Waves and their Applications in Information Transfer	Fourth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS1: Earth's Place in the Universe	Fourth		○														
	Fifth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS2: Earth's Systems	Third	○		○													
	Fourth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fifth					○					○						
ESS3: Earth and Human Activity	Third			○		○											
	Fourth										○						
	Fifth			○							●	○					
ETS1: Engineering Design	Third-Fifth		○		●	●			○			○					

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TWIGS Curriculum Standards
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Next Generation Science Standards (Middle School)	Grade Level*	Garden Activity Lessons															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
LS1: From Molecules to Organisms: Structures and Processes	Sixth-Eighth	●	●		●	○	○		○		●	○	○	○	○		○
LS2: Ecosystems: Interactions, Energy and Dynamics	Sixth-Eighth	○	○	●	○	○	○		○		●	●	●	●	○		
LS3: Heredity: Inheritance and Variation of Traits	Sixth-Eighth	○			○	○								○			
LS4: Biological Evolution: Unity and Diversity	Sixth-Eighth				○												
PS1: Matter and its Interactions	Sixth-Eighth		○			○					●						
PS2: Motion and Stability: Forces and Interactions	Sixth-Eighth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS3: Energy	Sixth-Eighth					○											
PS4: Waves and their Applications in Technology for Information Transfer	Sixth-Eighth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS1: Earth's Place in the Universe	Sixth-Eighth		○														
ESS2: Earth's Systems	Sixth-Eighth	○	●								○						
ESS3: Earth and Human Activity	Sixth-Eighth		○								○						
ETS1: Engineering Design	Sixth-Eighth	○		●				○	○		○						

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TWIGS Curriculum Standards
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Next Generation Science Standards (High School)	Grade Level*	Garden Activity Lessons															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
LS1: From Molecules to Organisms: Structures and Processes	Ninth-Twelfth	○	○		○				○		○						○
LS2: Ecosystems: Interactions, Energy and Dynamics	Ninth-Twelfth	○	○	●	○				○		○	○	○	○	○		
LS3: Heredity: Inheritance and Variation of Traits	Ninth-Twelfth				○												
LS4: Biological Evolution: Unity and Diversity	Ninth-Twelfth		●		○							○	○				
PS1: Matter and its Interactions	Ninth-Twelfth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS2: Motion and Stability: Forces and Interactions	Ninth-Twelfth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS3: Energy	Ninth-Twelfth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS4: Waves and their Applications in Technology for Information Transfer	Ninth-Twelfth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS1: Earth's Place in the Universe	Ninth-Twelfth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS2: Earth's Systems	Ninth-Twelfth		●						○		○						
ESS3: Earth and Human Activity	Ninth-Twelfth		○	○							○	○					
ETS1: Engineering Design	Ninth-Twelfth	○		○													

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-Nutrition Lessons-

Common Core State Standards in English Language Arts Supported (K-12)														
Nutrition Lessons	N 1	N 2	N 3	N 4	N 5	N 6	N 7	N 8	N 9	N 10	N 11	N 12	N 13	N 14
Reading Standards for Literature														
Key Ideas and Details	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Craft and Structure	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Integration of Knowledge and Ideas	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Range of Reading and Level of Text Complexity	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reading Standards for Informational Text														
Key Ideas and Details	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	-	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	-	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>
Craft and Structure	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Integration of Knowledge and Ideas	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	-	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	-	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>	<u>K, 1,</u> <u>2, 3,</u> <u>4, 5</u>
Range of Reading and Level of Text Complexity	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reading Standards: Foundational Skills														
Print Concepts	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phonological Awareness	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phonics and Word Recognition	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluency	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Writing Standards														
Text Types and Purposes	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Production and Distribution of Writing	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Research to Build and Present Knowledge	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Range of Writing	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Speaking and Listening Standards														
Comprehension and Collaboration	<u>K, 1,</u> <u>2</u>	<u>K, 1,</u> <u>2</u>	<u>K, 1,</u> <u>2</u>	<u>K, 1,</u> <u>2</u>	-	<u>K, 1,</u> <u>2</u>	-	-	-	-	<u>K, 1,</u> <u>2</u>	-	-	<u>K, 1,</u> <u>2</u>

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TWIGS Curriculum Standards
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Next Generation Science Standards (K-2)	Grade Level*	Nutrition Activity Lessons													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
LS1: From Molecules to Organisms: Structures and Processes	Kindergarten	•										○			
	First	•													
LS2: Ecosystems: Interactions, Energy and Dynamics	Second	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LS3: Heredity: Inheritance and Variation of Traits	First	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LS4: Biological Evolution: Unity and Diversity	Second				•										
PS1: Matter and its Interactions	Second			○						○					
PS2: Motion and Stability: Forces and Interactions	Kindergarten													○	
PS3: Energy	Kindergarten	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS4: Waves and their Applications in Technology for Information Transfer	First	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS1: Earth's Place in the Universe	First	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Second	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS2: Earth's Systems	Kindergarten					○									
	Second	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS3: Earth and Human Activity	Kindergarten	○													
ETS1: Engineering Design	K-2		○					○		○					

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Next Generation Science Standards (3-5)	Grade Level*	Nutrition Activity Lessons													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
LS1: From Molecules to Organisms: Structures and Processes	Third	○													
	Fourth	○	○	○										○	
	Fifth			○		○									
LS2: Ecosystems: Interactions, Energy and Dynamics	Third	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fifth						○								
LS3: Heredity: Inheritance and Variation of Traits	Third	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LS4: Biological Evolution: Unity and Diversity	Third	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS1: Matter and its Interactions	Fifth									○				○	
PS2: Motion and Stability: Forces and Interactions	Third	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fifth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS3: Energy	Fourth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fifth	○													
PS4: Waves and their Applications in Information Transfer	Fourth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS1: Earth's Place in the Universe	Fourth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fifth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS2: Earth's Systems	Third	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fourth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fifth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS3: Earth and Human Activity	Third	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fourth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fifth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ETS1: Engineering Design	Third-Fifth		○											○	

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Next Generation Science Standards (Middle School)	Grade Level*	Nutrition Activity Lessons													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
LS1: From Molecules to Organisms: Structures and Processes	Sixth-Eighth	○												○	
LS2: Ecosystems: Interactions, Energy and Dynamics	Sixth-Eighth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LS3: Heredity: Inheritance and Variation of Traits	Sixth-Eighth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LS4: Biological Evolution: Unity and Diversity	Sixth-Eighth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS1: Matter and its Interactions	Sixth-Eighth							●		●					
PS2: Motion and Stability: Forces and Interactions	Sixth-Eighth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS3: Energy	Sixth-Eighth									○				○	
PS4: Waves and their Applications in Technology for Information Transfer	Sixth-Eighth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS1: Earth's Place in the Universe	Sixth-Eighth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS2: Earth's Systems	Sixth-Eighth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS3: Earth and Human Activity	Sixth-Eighth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ETS1: Engineering Design	Sixth-Eighth		○										○	○	

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TWIGS Curriculum Standards
(Grades K-6)



Next Generation Science Standards (High School)	Grade Level*	Nutrition Activity Lessons													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
LS1: From Molecules to Organisms: Structures and Processes	Ninth-Twelfth	●	○					○							
LS2: Ecosystems: Interactions, Energy and Dynamics	Ninth-Twelfth		○	○											
LS3: Heredity: Inheritance and Variation of Traits	Ninth-Twelfth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LS4: Biological Evolution: Unity and Diversity	Ninth-Twelfth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS1: Matter and its Interactions	Ninth-Twelfth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS2: Motion and Stability: Forces and Interactions	Ninth-Twelfth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS3: Energy	Ninth-Twelfth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PS4: Waves and their Applications in Technology for Information Transfer	Ninth-Twelfth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS1: Earth's Place in the Universe	Ninth-Twelfth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESS2: Earth's Systems	Ninth-Twelfth									○					
ESS3: Earth and Human Activity	Ninth-Twelfth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ETS1: Engineering Design	Ninth-Twelfth	●	●									○		○	

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