

Gardening in Our Warming World: Youth Grow!

In New York State, climate change is already having a profound impact on society, the economy, and natural ecosystems. The agricultural growing season is fluctuating. Coastal and inland flooding is happening more often. Populations of plants and wildlife are changing. Catastrophic weather events are more likely, and their costs to human life and buildings is increasing.

~NYSERDA Climate Change in NYS, 2019

Preface

Cornell Cooperative Extension (CCE) is committed to educating everyone about climate change and helping us each to implement the strategies that are needed both to adapt to these changes and mitigate impacts. Youth are becoming increasingly aware of the environment around them, whether at home, in school or the community. They are beginning to understand their futures are dependent on their present behaviors and they are also beginning to recognize that positive changes, no matter how big or small, will result in positive outcomes for their future lives.

Home, school and community gardens, public spaces and land use are all living labs that provide evidence of changing climate conditions. They are examples of how people adapt and adopt sustainable practices to address these changes to alleviate the acceleration of climate change. Gardeners see the impacts of the changing climate on their gardens, and they deal directly with extreme wet and dry conditions, unseasonable cold and freezing conditions, increases in new pests and invasive species, changes in plant diseases, variability in heat and hardiness zones, and extreme weather events. Our *Gardening in a Warming World* and *Gardening in Our Warming World: Youth Grow!* materials aim to provide guidance and resources to support youth leaders, garden-based educators and volunteers as they are increasingly called upon for information in the face of this new challenge.

Introduction

Gardening in Our Warming World: Youth Grow! consists of an updated curriculum and Facilitator Guide for youth on Climate Change, replacing the existing "One Seed at a Time-Climate Change in the Garden" curriculum. It will complement the Cornell GBL adult "Gardening in a Warming World" with links to Youth Grow, Seed to Supper and 4-H activities. While activities include the science of climate change, cause and effect, and actions we take to

Building Strong and Vibrant New York Communities

Diversity and Inclusion are a part of Cornell University's heritage. We are a recognized employer and educator valuing AA/EEO, Protected Veterans, and Individuals with Disabilities.

address the issue, we would like the tone to be less alarming therefor preventing climate-anxiety. Activities will be more self-reflective and inspiring, with exploration on what people and communities are doing, what youth themselves can do now, and how they see themselves in the future making positive changes. The focus is on systems thinking, sustainability and food systems. Activities are appropriate for Beginning, Intermediate and Advanced skill levels (grades 3-6, 7-12) with some early learning introduction.

This *Curriculum Overview* and each *Unit Facilitator Guide* is focused on youth audiences and complements *Gardening in a Warming World: A Climate Smart Gardening Course Book*, and provides more detailed information for teachers, garden-based educators, youth leaders and volunteers to use in teaching climate change and how it affects our lives, gardens and the environment. It reflects on the core elements of Systems Thinking and offers hands-on, authentic activities for youth, with helpful tips for ways for adult leaders and educators to present climate change education, action, adaptation and climate mitigation in positive ways.

The *Gardening in Our Warming World: Youth Grow!* curriculum consists of four conceptual units, each with corresponding activities and lesson plans following the 4-H Thriving Model, 4-H Guided Inquiry format, and Common Core Learning Standards. Included are links to relevant resources and additional lessons and activities, and suggestions on how to facilitate

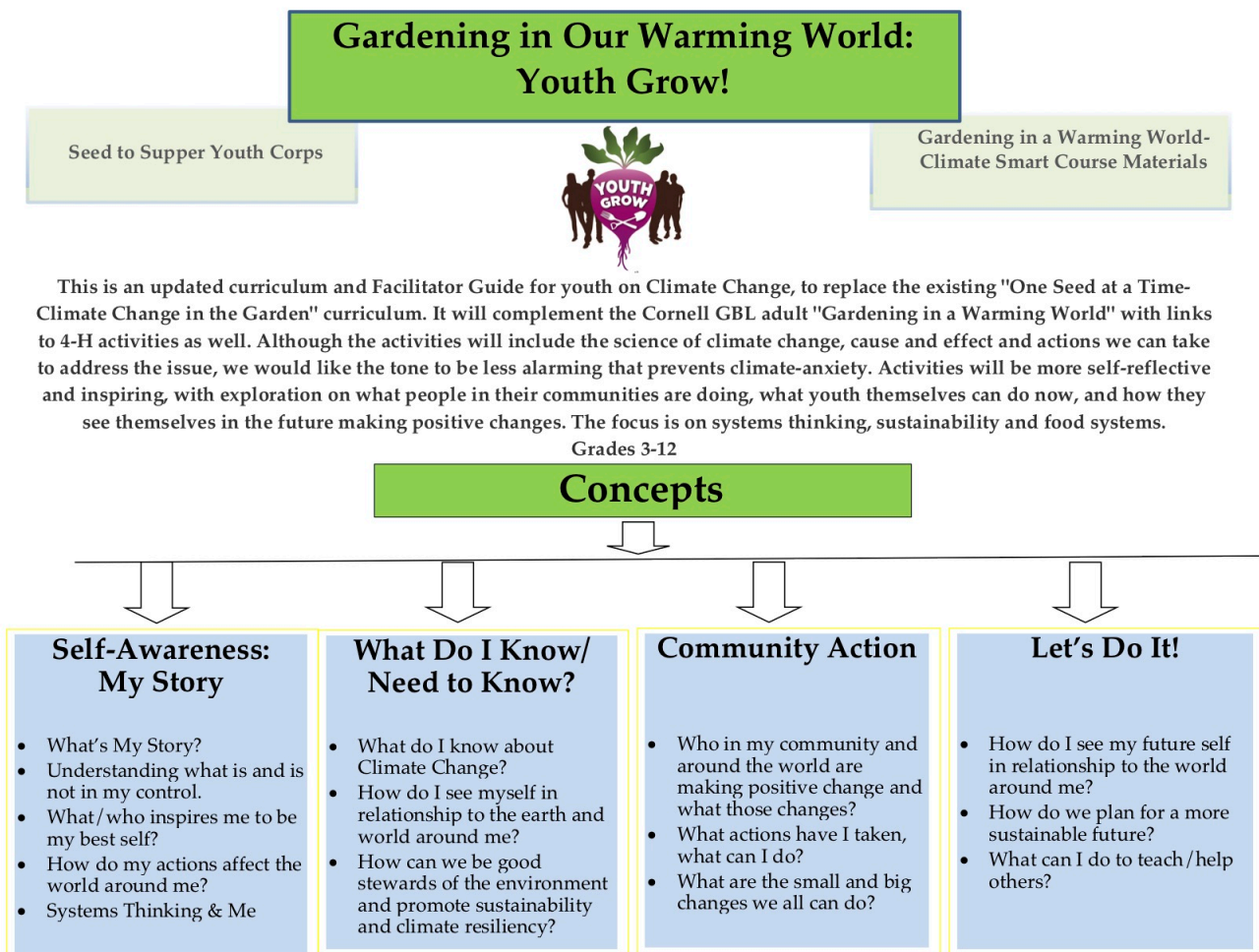


Figure 1 Conceptual Units

dialogue on this occasionally challenging topic. An accompanying PowerPoint presentation can be shared with other educators to introduce and curriculum and teaching strategies.

For more information and research on the 4-H Thriving Model, visit <https://health.oregonstate.edu/thriving-model>

Overview

Major Elements of Gardening in Our Warming World: Youth Grow!

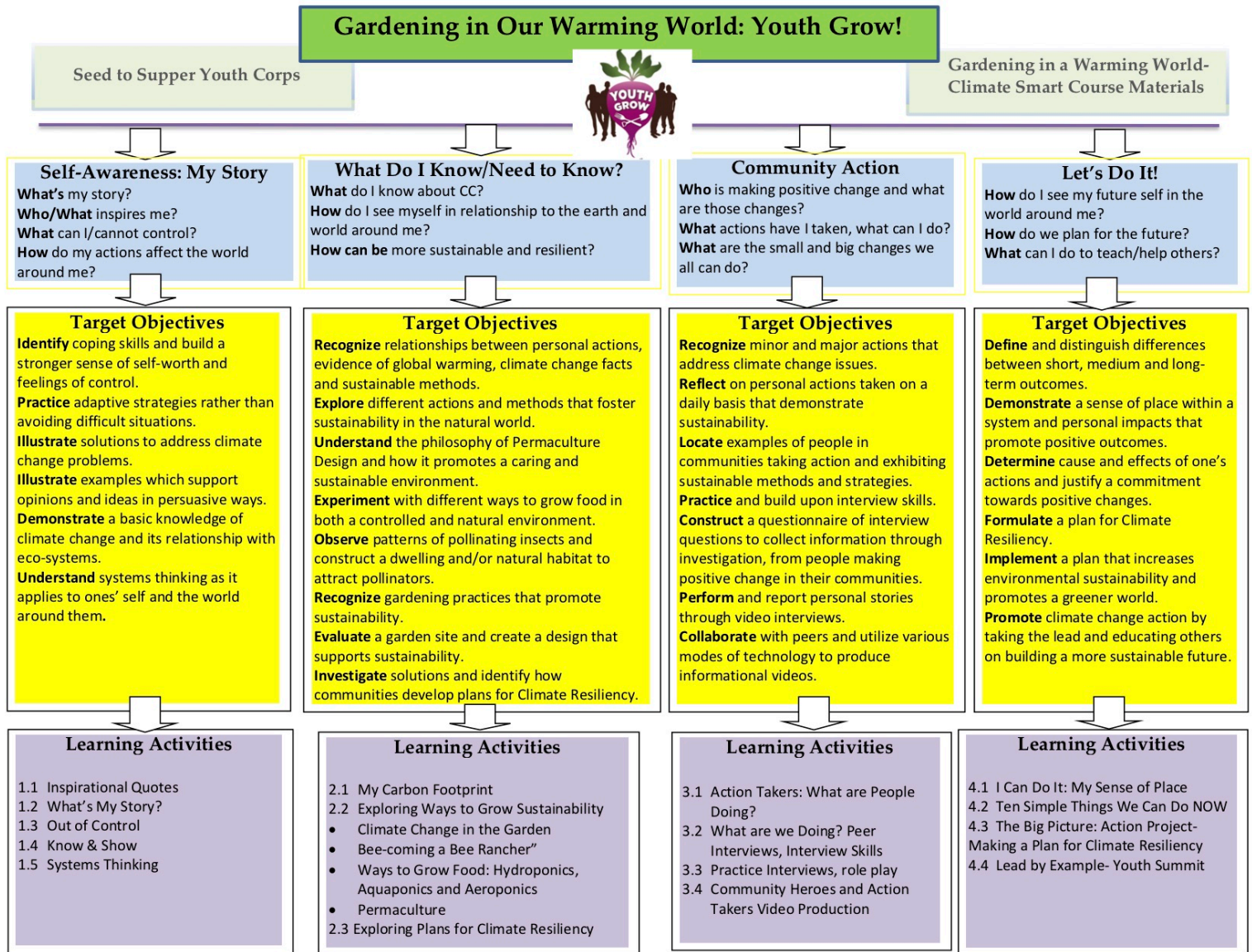


Figure 2: Target Objectives and Learning Activities

Unit One: What's My Story?

Introduction

In **Unit One: What's My Story**, your group will engage in activities that employ existing knowledge, promote self-awareness, encourage self-control, and explore further self-reflection. Seeing how they themselves as part of a larger more complex system, and how they can evoke positive change within a system, starts with self-assurance confidence. In looking at the big picture, any stress and concerns that our younger generation may have on the fate of their future, has placed a burden on their shoulders that they may not be ready for. As adult leaders, it is our responsibility to provide guidance, awareness, and any evidence needed to for youth to use critical thinking to make informed decisions and choices for their personal well-being.

Select the topics and activities in this unit that best suits your group's skill level, interests and capabilities, as they will prepare youth with any urgency they may feel, and stresses on immediacy of actions. Youth are becoming increasingly aware of the environment around them, whether at home, in school or community, they envision a future that is dependent on their present behaviors and begin to recognize that positive changes no matter how big or small will result in positive outcomes for their future lives.

Keeping the discussion ongoing, direct and open-minded will help dispel any fear or misconceptions youth may have in regard to climate change and how society addresses these issues.

How to Talk About Climate Change with Youth



Markus Spiske on [Unsplash](#)

Since climate change perspectives may differ, it is advisable for educators and youth leaders to be ready to respond to those feeling climate anxiety or those in need of science-based knowledge. To provide the public with awareness of climate change risks, we need to frame conversations around climate change impacts and the capacity of our communities to adapt and be engaged. We need not have all the answers to play a critical role in addressing climate change, since this is an ever-changing, complex topic that still has unknown factors.

Facilitate conversations and dialogue that allow youth to fully engage and express personal viewpoints, and to process any emotional response such as worry, fear, interest, and curiosity which may emerge in their understanding about climate change vision of the future. We can promote a positive tone while using of scientific evidence, when participating in discussions around the critical nature of the issue and offer strategies for curbing and adapting to climate impacts.

Adapted from Gardening in a Warming World Facilitator's Notebook: For Garden-Based Educators, Volunteers, and Peer Learning Networks

Target Objectives

- ✓ Identify coping skills and build a stronger sense of self-worth and feelings of control.
- ✓ Practice adaptive strategies rather than avoiding difficult situations.
- ✓ Illustrate solutions to address climate change problems.
- ✓ Illustrate examples which support opinions and ideas in persuasive ways.
- ✓ Demonstrate a basic knowledge of climate change and its relationship with eco-systems.
- ✓ Understand systems thinking as it applies to ones' self and the world around them.

Learning Activities

- 1.1 Inspirational Quotes (all skill levels)
- 1.2 What's My Story? (all skill levels)
- 1.3 Out of Control (all skill levels)
- 1.4 Know & Show (Beginning)
- 1.5 Systems Thinking (all skill levels)

Thriving Model Attributes

Youth Engagement:

- Growth mindset
- Hopeful purpose
- Pro-social orientation
- Transcendental Awareness
- Positive emotionality

Developmental Outcomes:

- Personal standards
- Personal responsibility

Long-Term Outcomes:

- Happiness and Wellbeing

Unit Two: What Do I Know? About Climate Change

Introduction

In **Unit One: What's My Story**, your group participated in activities that explored self-awareness, self-control, existing knowledge, and how they see themselves as part of a larger and more complex system. In looking at the big picture, stress and concerns that our younger generation may have regarding the fate of their future has placed a burden on their shoulders for which they may not be ready. As adult leaders, it is our responsibility to provide guidance, awareness, and evidence needed to for youth to effectively process this information and make more informed decisions and choices for positive change.

Unit Two: What Do I Know? provides an exploration of proactive sustainable practices that offer solutions to climate change issues. Before starting this unit, take a look at the curricula and resources listed here, should your group need a more in-depth inquiry and basic knowledge of climate, weather, and the science and effects of climate change and global warming. You can also use these resources to compliment the activities in Unit Two. Ongoing, open and honest discussion will help address the fears or misconceptions youth may have in regard to climate change and how as a society we are addressing these issues.



photo by Oneida County Cornell University Cooperative Extension

Target Objectives

- ✓ Recognize the relationships between personal actions, evidence of global warming, climate change facts and sustainable methods.
- ✓ Explore different actions and methods that foster sustainability in the natural world.
- ✓ Understand the philosophy of Permaculture Design and how it promotes a caring and sustainable environment.
- ✓ Experiment with different ways to grow food in a both a controlled and natural environment.
- ✓ Observe patterns of pollinating insects and construct a dwelling and /or natural habitat to attract pollinators.
- ✓ Recognize gardening practices that promote sustainability.
- ✓ Evaluate a garden site and create a design that supports sustainability.
- ✓ Investigate solutions and identify how communities develop a plan for Climate Resiliency.



photo by Donna Alese Cooke

Learning Activities

2.1 My Carbon Footprint (Beginning, Intermediate)

2.2 Exploring Ways to Grow Sustainability for the Future

Choose activities based on skill level and interest:

2.2.A: Climate Change in the Garden

2.2.B: Save the Bees "Bee-coming a Bee Rancher"

2.2.C: Ways to Grow Food: Alternative growing methods: Hydroponics, Aquaponics and Aeroponics

2.2.D: Permaculture

2.3 Exploring Plans for Climate Resiliency (Intermediate, Advanced)

Thriving Model Attributes

Youth Engagement:

- Growth mindset
- Openness to Discovery
- Goal Management

Developmental Outcomes:

- Contribution to others
- Connection to others
- Personal responsibility

Long-Term Outcomes:

- Happiness and Wellbeing

Unit Three: Community Action

Introduction

In **Unit Two: What Do I Know?** your group participated in activities that explored self-awareness, self-control, existing knowledge, and how they see themselves as part of a larger more complex system. You explored a variety of pro-active sustainable practices that offer solutions to climate change issues. Before starting this unit, your group may have taken a more in-depth study of climate, weather, and the science and effects of climate change and global warming or used the additional resources to compliment the activities in Unit Two.

In Unit Three, **“Community Action”** your group will work through a series of experiential activities leading up to the final preparation and presentation of a video project. Participants will explore videos illustrating actions that people are taking to both address climate change issues and reduce their carbon footprint. These videos will serve to increase resiliency awareness and act as a tool to inspire youth to reflect on their own practices. They will also be



CommuniTree Steward Volunteers, photo by Cornell Cooperative Extension Onondaga County

used as technical examples for participants to observe style and content which participants can model and use to create their own videos. Groups will learn/enhance interviewing skills through practice, review, observations and utilization. Note; the final activity, the video production itself can be used by beginner skill levels, with adult supervision if needed.

Target Objectives

- ✓ Recognize minor and major actions that address climate change issues.
- ✓ Reflect on personal actions taken on a daily basis that demonstrate sustainability.
- ✓ Locate examples of people in communities taking action and exhibiting sustainable methods and strategies.
- ✓ Practice and build upon interview skills.
- ✓ Construct an interview questionnaire to collect information via investigative methods from people making positive change in their communities.
- ✓ Perform and report personal stories through video interviews.
- ✓ Collaborate with peers and utilize various modes of technology to produce informational videos.

Learning Activities

- 3.1 Action Takers: What are People Doing? (all skill levels)
- 3.2 What are We Doing? Peer Interviews, Interview Skills (all skill levels)
- 3.3 Practice Interviews (all skill levels)
- 3.4 Heroes and Action Takers Video Production (all skill levels)

Thriving Model Attributes

Youth Engagement:

- Openness to challenge and discovery
- Positive emotionality
- Goal Management

Developmental Outcomes:

- Connection to others
- Personal responsibility

Long-Term Outcomes:

- Happiness and Wellbeing

Unit Four: Let's Do It!

Introduction

In **Unit THREE: Community Action** your group participated in a series of experiential activities leading up to the final preparation and presentation of a group video project. First, they explored videos showcasing communities taking action to address climate change issues, planning for resiliency and implementing ways to reduce their carbon footprint. These videos were also used as a tool to provide technical examples of how to your group would produce their own videos featuring local citizens taking action against climate change. During the video production process, your group reflected on their personal stewardship, teamed up to practice interview skills, and sought out others in their local community to interview, who are inspirational and promoting positive change.

In Unit FOUR: Let's Do It! provides activities for youth of all skill levels, to explore opportunities that help them to plan and prepare to take action for their future by taking a more informed, less alarming approach. Using what they have learned in this program, this unit offers tools and strategies for youth to become leaders who go forth and teach others in their own communities. With a greater awareness of their sense of place and understanding of community resiliency, methods of sustainability and a systems approach, youth will be more self-confident making positive change. In doing so, they have matured into young leaders who will share this knowledge to help others to forge pathways to a better future.

Target Objectives

- ✓ Define and distinguish differences between short, medium and long-term outcomes.
- ✓ Demonstrate a sense of place within a system and personal impacts that promote positive outcomes.
- ✓ Implement a plan that increases environmental sustainability and promotes a greener world. Formulate a plan for Climate Resiliency.
- ✓ Determine cause and effects of one's actions and justify a commitment towards positive changes.
- ✓ Promote climate change action by taking the lead and educating others on building a more sustainable future.

Learning Activities

- 4.1 I Can Do It: My Sense of Place (all skill levels)
- 4.2 Ten Simple Things We Can Do NOW (all skill levels)
- 4.3 The Big Picture Action Project- Plan for Climate Resiliency (Intermediate, Advanced)
- 4.4 Lead by Example- Planning and Leading an Educational Event (Advanced)

Thriving Model Attributes

Youth Engagement:

- Growth mindset
- Hopeful purpose
- Transcendental Awareness
- Goal Management

Developmental Outcomes:

- Social Competence
- Contribution to others
- Connection to others
- Personal responsibility

Long-Term Outcomes:

- Civic Engagement
- Vocational Success
- Happiness and Wellbeing

Skill Levels

- Beginning-for members with little or no experience in the project area; elementary grade reading level; ages 8-10
- Intermediate-for members with 3-5 years of experience in the project area; middle school reading level; ages 11-13
- Advanced- for members with 5 or more years of experience with the content; high school reading level; ages 14-18

4-H Thriving Model

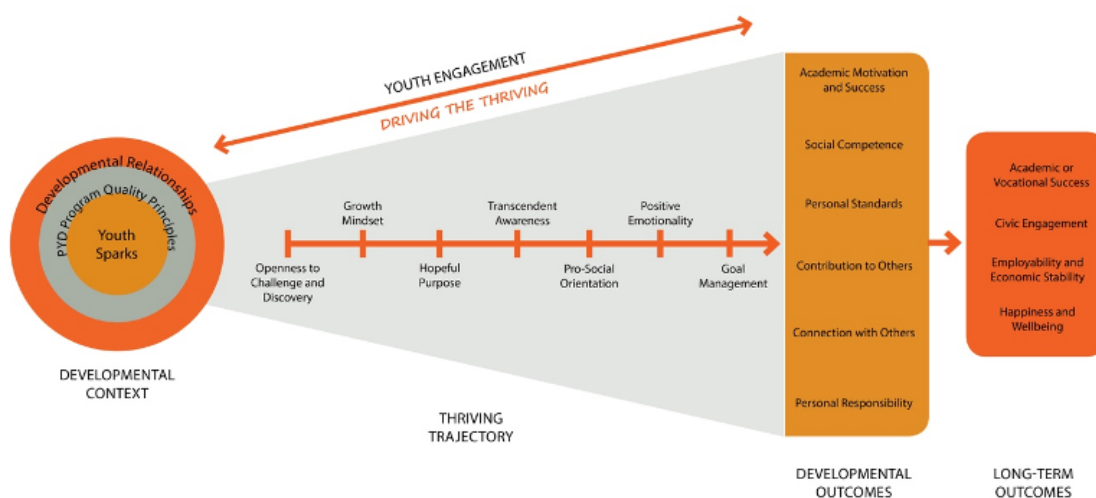


Figure 3: 4-H Thriving Model, Oregon State College of Public Health and Human Science

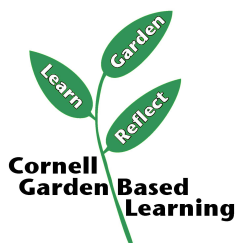
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Oregon State College of Public Health and Human Sciences: 4-H Thriving Model

<https://health.oregonstate.edu/thriving-model>



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