

Schools, Food and Gardening:  
Health and Sustainability  
on the Horizon

*Getting the  
Kids Connected*

Pamela Ann Koch  
Teachers College  
Columbia University



**Rethinking School Lunch**  
A SYSTEMIC PLANNING FRAMEWORK FOR CURRICULUM INTEGRATION

**LIFE LINKING FOOD AND THE ENVIRONMENT**  
AN INQUIRY-BASED SCIENCE AND NUTRITION PROGRAM



Why is it  
**important** to get  
**students**  
**connected?**

**Experiences**

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecocliteracy

**Cooking**



**Active  
participation**  
of learners improves  
**eating habits.**

Whitehead JNE Wod Rev. Nutri. Diet  
17:91-149 1973

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecocliteracy

**Cookshop Evaluation**

**Education + exposure**

Some students  
received **CS** in  
the classroom

Some students  
received FEL in  
the classroom

Some students  
received **CS**  
and FEL

Some students  
only cafeteria  
changes

All students received new V and WG  
recipes in cafeteria

Linking Food and the Environment  
Teachers College Columbia University

Liquori, Koch, Contento, Castle,  
JNE 302-313, 1998

Rethinking School Lunch  
Center for Ecocliteracy



**School gardens** are the **new direction** in school-based promotion of fruits and vegetables.

French and Wechsler, Prev Med S101-107 2004.

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy

**Garden-based Nutrition Education**

**Education + exposure**

Some students <b>NE + Gard</b> 4.5 serv F&V/day	Some students NE only 2.2 serv F&V/day	Some students control 2.0 serv F&V/day
--	---	---

McAleese & Rankin JADA 662-665, 2007

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy

Garden-based nutrition education may be one **small tool** with **tremendous impact.**

McAleese & Rankin JADA 662-665, 2007

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy



The food system is **vastly complex** yet **largely unknown.**

Wilkins & Eames-Sheavly, Discovering the Food System: An Experiential Learning Program for Young and Inquiring Minds, 2003

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy



**Science agency**  
 is the realized capacity  
 of students to utilize their  
**science understandings**

Calabrese Barton and  
 Vora, 2006; Inden, 1990

Linking Food and the Environment  
 Teachers College Columbia University

Rethinking School Lunch  
 Center for Ecoteracy

to purposefully and  
 reflectively  
**act upon their world**

Calabrese Barton and  
 Vora, 2006; Inden, 1990

Linking Food and the Environment  
 Teachers College Columbia University

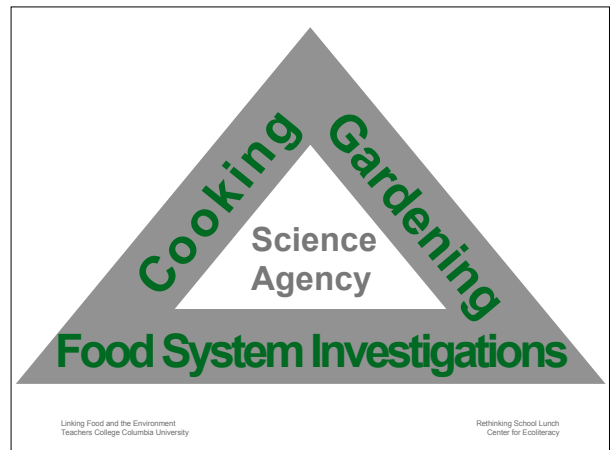
Rethinking School Lunch  
 Center for Ecoteracy

with the aim of  
**transforming themselves** and the  
**conditions of their lives.**

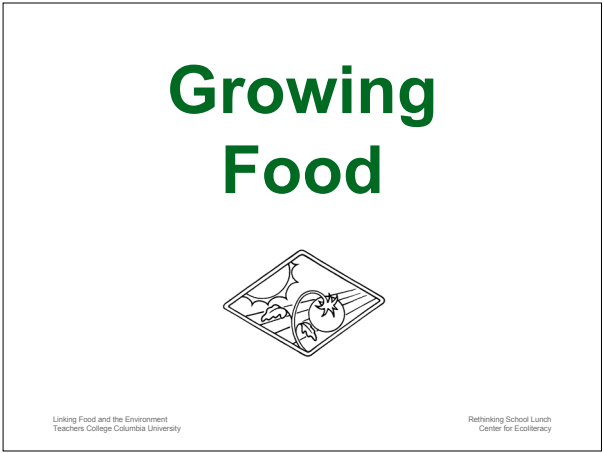
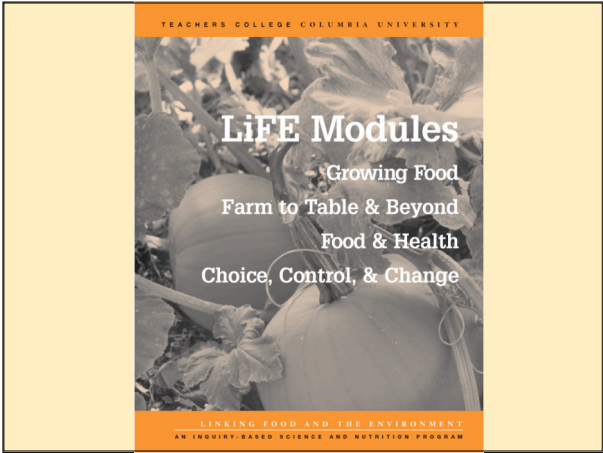
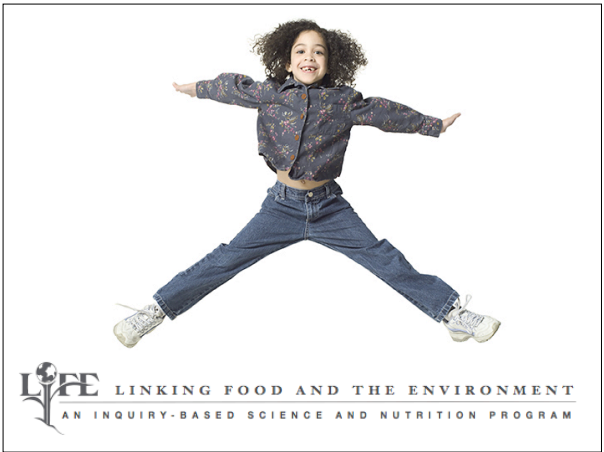
Calabrese Barton and  
 Vora, 2006; Inden, 1990

Linking Food and the Environment  
 Teachers College Columbia University

Rethinking School Lunch  
 Center for Ecoteracy



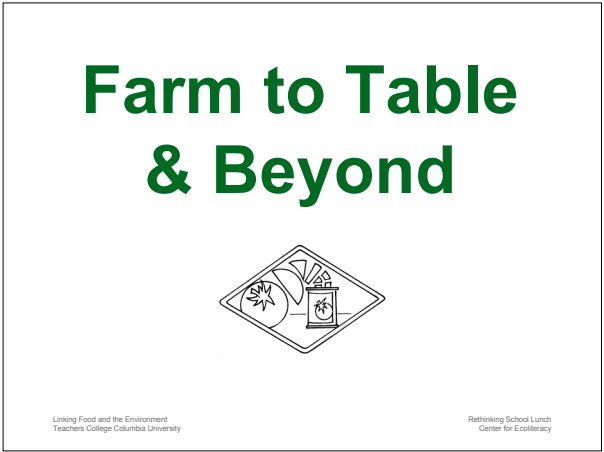
How do we get  
**students  
connected?**



How does **nature**  
provide us  
with **food?**

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy





What is the **system** that gets food from **farm to table** and how does this system effect the **environment?**

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy

## Food & Health



Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy

How does **food** provide our **body** with what it **needs?**

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy

## Choice, Control & Change (C3)

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy

How can we use **scientific evidence** to help us make **healthy food and activity choices?**

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy

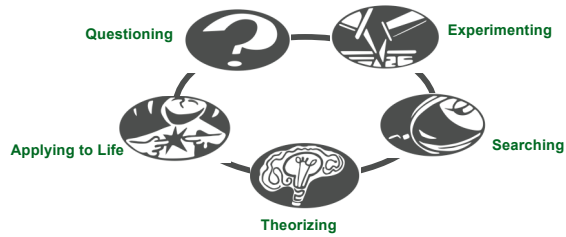
**QuESTA** is our five-phase cycle that guides students through their learning.



Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy

## Questa Learning Cycle



Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecocliteracy

## Questioning

consider  
contemplate  
speculate  
think about  
wonder



Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecocliteracy

## Experimenting

create research questions  
hypothesize  
examine  
design experiments  
gather and display data



Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecocliteracy

## Searching

discover  
explore  
gain knowledge about  
research  
seek



Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecocliteracy

## Theorizing

analyze  
create ideas  
debate  
discuss  
envision  
explain  
imagine  
reflect  
summarize



Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecocliteracy

## Applying to Life

carry out  
embark  
implement  
put into action  
use



Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecocliteracy

How do we  
**evaluate** what  
**students**  
**learned?**

We can understand how students' **thinking** about food systems becomes more **complex** by understanding their **learning progressions.**

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy

Students' grasp of the **food system** can range from understanding **isolated parts** to a **synthesized whole.**

As students come to understand the food system as a **synthesized whole** they can...

...analyze how the system impacts environmental and personal health

...analyze how the system impacts environmental and personal health

...describe the role of humans in the system

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy

...analyze how the system impacts environmental and personal health

...describe the role of humans in the system

...move from personal reasoning to place-based principled arguments

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy

## The LIFE Story of Strawberry Jam

Describe all the steps to get strawberries from a farm in California to be sold as strawberry jam in a store in New York City.

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy

### Isolated parts

More parts  
Parts explained more  
Parts of a system  
Relationships between parts  
Synthesized whole

“To deliver the strawberries you could send it on a boat or a plane or train.” *before LIFE*

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy

Isolated parts

**More parts**  
Parts explained more  
Parts of a system  
Relationships between parts  
Synthesized whole

“First you have to cut the strawberries from a tree. Second you put the strawberries in a box. Then you send them to the city in a car.”  
*before LIFE*

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy

Isolated parts  
More parts  
**Parts explained more**  
Parts of a system  
Relationships between parts  
Synthesized whole

“First you have to grow strawberries. Second you take the strawberries off of the plant. Next you squeeze the strawberries. Then put some oil and you have strawberry jam.”  
*before LIFE*

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy

Isolated parts  
More parts  
Parts explained more  
**Parts of a system**  
Relationships between parts  
Synthesized whole

“First in California workers take the strawberry and transport in NY. After that in NY on factory workers with help machines made the strawberry jam.” *before LIFE*

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for Ecoteracy



Isolated parts  
 More parts  
 Parts explained more  
 Parts of a system  
**Relationships between parts**  
 Synthesized whole

“Strawberries come here by a plane a boat or a truck. They take to a factory and they smash it. They bring it here and they put it in a jar with jelly and that is how they call it strawberry jam.” *after LIFE*

Linking Food and the Environment  
 Teachers College Columbia University

Rethinking School Lunch  
 Center for Ecoliteracy

Isolated parts  
 More parts  
 Parts explained more  
 Parts of a system  
 Relationships between parts  
**Synthesized whole**

“They take the strawberries, it gets transported to a factory. It gets processed in the factory. It gets in a jar. It gets transported to a store in NY.” *after LIFE*

Linking Food and the Environment  
 Teachers College Columbia University

Rethinking School Lunch  
 Center for Ecoliteracy

The strawberry jam question serves as a **“lens”** to help us see where students are along the **food systems learning progression.**

Linking Food and the Environment  
 Teachers College Columbia University

Rethinking School Lunch  
 Center for Ecoliteracy

How can we get our message **“out there”?**

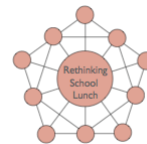
## Rethinking School Lunch LIFE Network

Linking Food and the Environment  
 Teachers College Columbia University

Rethinking School Lunch  
 Center for Ecoliteracy

## Rethinking School Lunch

FOOD POLICY  
 CURRICULUM INTEGRATION  
 FOOD AND HEALTH  
 FINANCES  
 FACILITIES DESIGN



THE DINING EXPERIENCE  
 PROFESSIONAL DEVELOPMENT  
 PROCUREMENT  
 WASTE MANAGEMENT  
 MARKETING AND COMMUNICATIONS

[www.ecoliteracy.org](http://www.ecoliteracy.org)

Linking Food and the Environment  
 Teachers College Columbia University

Rethinking School Lunch  
 Center for Ecoliteracy

Rethinking School Lunch  
Linking Food, Culture, Health, and the Environment

Discover how an integrated curriculum and enriched school environment link student learning and well-being and enhance student understanding about the natural world.

Linking Food and the Environment  
Teachers College Columbia University

RSL/LiFE National Curriculum Strategy

Chicago Botanic Garden  
Michigan State U. College of Education  
Projects in NYC Public Schools  
Teachers College Columbia University  
Philadelphia, PA Teachers College/Food Trust  
U.S. Botanic Garden  
Fairchild Tropical Botanic Garden

- Current partners in formal education
- Current partners in informal education
- Current implementation sites
- Future partnerships (in discussion)

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for EcoLiteracy

With these experiences we hope today's children can become **consciousness citizens** with **healthful lifestyles.**

Linking Food and the Environment  
Teachers College Columbia University

For a **brighter future.**

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for EcoLiteracy

thank you

Linking Food and the Environment  
Teachers College Columbia University

Rethinking School Lunch  
Center for EcoLiteracy

**TEACHERS COLLEGE**  
COLUMBIA UNIVERSITY

Center for **ecoliteracy**

Linking Food and the Environment  
Teachers College Columbia University  
525 West 120th St. Box 137  
New York, NY 10027  
Tel: 212-678-3001  
Web: www.tc.edu/life

Rethinking School Lunch  
Center for EcoLiteracy  
2528 San Pablo Avenue  
Berkeley, California 94702  
Tel: 510-845-4595  
Web: www.ecoliteracy.org

Department of Health and Human Services • National Institutes of Health

**NCRR** Supported by a Science Education Partnership Award (SEPA) from the National Center for Research Resources