

TEENS CAN

COMPREHENSIVE FOOD LITERACY IN
COOKING, **A**GRICULTURE, AND **N**UTRITION



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Introduction

Teens CAN: Comprehensive Food Literacy in Cooking, Agriculture, and Nutrition was designed with the intention of improving food literacy of high school-aged adolescents, typically aged 13–18 years.

Food literacy comprises overlapping knowledge and skills that are required to maintain a healthy eating pattern. This includes understanding where food comes from and being able to prepare meals that meet nutrition recommendations. Food literacy has been conceptualized for *Teens CAN* into three overarching topic areas: agriculture, nutrition, and cooking. Concepts within these topic areas include the food supply chain, food environments, nutrition recommendations, meal planning, food safety, and cooking techniques. The lessons are geared toward adolescents and are taught in an engaging way.

Implementation

Teens CAN was written to be implemented as a whole, but can also be used as three separate curricula. The modules were written to stand alone and can be used independently if needed. The intended style for implementing the lessons is inquiry, which allows for the facilitator to lead learners through discovery of concepts, opposed to lecture style, for example. This style takes practice and helps learners better retain knowledge gained from each lesson. Prior experience delivering inquiry-based education can aid in achieving lesson fidelity. Lesson fidelity is how well the facilitator delivers the lesson as intended and is very important for learners to achieve the lesson objectives.

Teens CAN is recommended to be accompanied by an agricultural space. While referred to as an “agricultural space” throughout the curriculum, this can range from a small garden to a state-of-the-art greenhouse. Please see the *Building an Agricultural Space* guide provided within the curriculum if assistance is needed for starting an agricultural space. Additionally, the cooking lessons of this curriculum require somewhere to prepare food and access to cooktops. These lessons can be taught in a traditional kitchen or on tabletops using portable stovetops, such as induction hot plates. Please see *Common Cooking Equipment* for a list of suggested cooking equipment to provide for cooking lessons.

Curriculum Organization

Background Information: foundational information for key concepts included in module lessons

Concepts and Vocabulary: definitions for each key concept or vocabulary term

Materials Needed: comprehensive list of materials needed, including those provided as appendices, to facilitate each lesson

Time Required: estimated time required in order to complete each lesson as determined by pilot testing

Suggested Groupings: recommendation for how many learners to include in each group

Getting Ready: detailed instructions for how to prepare lesson materials and organization of the learning space

Opening Questions: opening prompts for the learners to answer within their small groups meant to help the facilitator determine prior relevant knowledge

Procedure (Experiencing): step-by-step instructions for facilitating each lesson

Sharing, Processing, and Generalizing: combination of three steps in experiential learning that allow learners to share their findings with one another, while also processing what they are learning, and how the concepts can apply elsewhere

Concept and Term Discovery/Introduction: concise description of key concepts that should have been discovered or introduced to the learners throughout the lesson

Agriculture Application: agricultural lesson that applies concepts from the first module lesson

Culinary Application: culinary lesson that applies concepts from the first module lesson

Home Application: home lesson that applies concepts from the first module lesson and/or the other application lessons

Pilot Testing

Pilot testing for this curriculum was conducted in multiple rounds and suggested that *Teens CAN* can be implemented in multiple settings, such as after-school programs and clubs or integrated into classroom learning. *Teens CAN* meets several educational standards as outline in the *Educational Standards* table provided within the curriculum. *Teens CAN* has also been utilized in a cross-age teaching model wherein adolescents were educated in food literacy concepts and then trained to facilitate curricula with elementary school-aged youth. For this program, adolescents facilitated *Discovering Healthy Choices* and *Cooking Up Healthy Choices*, which are garden-enhanced nutrition curricula.

Several measurements were assessed during pilot testing, including dietary intake, cooking skills self-efficacy, nutrition knowledge, and academic measures. If you would like more details about assessment tools used for evaluating *Teens CAN* participants, please contact Lyndsey D. Ruiz at ldruiz@ucdavis.edu or Anna M. Jones at anajones@ucdavis.edu.

References

All references can be found in the back of the curriculum.

Building an Agricultural Space

This guide will help in building an agricultural space and provide guidance for its maintenance. It is recommended to make the agricultural space multi-functional, meaning it can be used for education and outdoor events in addition to a space for growing food crops and non-edible plants. When making decisions about what to grow, consider the interest of the youth who will be learning and working in the space and the expected longevity of the plants. Involve the youth in planning and building the agricultural space because it is a fun educational opportunity.

Establishing Space

If there is not already a designated agricultural space, such as a pre-existing school or community garden, start by identifying possible areas and gaining any required permission needed for using the space. It is important to identify the space before building so that you are aware of any potential limitations. If working within a school, it is recommended to connect with the school principal or the district superintendent to ensure that any requirements are met prior to building or occupying space. If working in communal space, such as at a community center, it is recommended to connect with the governing agency that oversees the land to ensure that any requirements are met prior to building or occupying space. Additionally, funding for starting and maintaining the agricultural space can be determined and a budget established. While there may be some money for the project, you may want to consider pursuing other opportunities for supplemental funds.

Cooperative Extension: Be sure to check with your local Cooperative Extension programs. Cooperative Extension offices include Master Gardeners that can provide guidance on gardening in your area as well as offer resources and next steps in setting up your agricultural space. You can find your local Master Gardener at <https://mastergardener.extension.org/contact-us/find-a-program/>.

Apply for grants: Several grants are available for starting a school or community garden and can be searched and applied for online. Granting agencies vary from small businesses and private companies to large hardware stores and federal programs. There are a variety of grants available depending on your location and the time of year you are applying. Applications typically require a description of how funds will be used and a detailed budget. Be sure to look closely at the requirements and deadlines.

Donations: Reach out to hardware and other garden supply stores in your area to ask for donations of gardening supplies and other materials needed for your agricultural space to be successful. When asking for donations, be sure to include that the intent of the agricultural space is to provide food literacy education for youth in the community. Knowing this information may provide an added incentive for potential donors.



The amount of room for the agricultural space can be determined based on availability. If there is not a pre-existing agricultural space available, such as a school or community garden, you may need to start your own. This might mean that space is limited, but there are creative ways to provide an area for youth to learn to grow food.

Container gardening: Various containers, such as pots, bins, or planters, can be utilized to start a small garden. Ensure that the container has adequate drainage before filling it with soil. Another container can be placed underneath to catch water drainage. Container gardens can be used in a variety of spaces, including indoors near a window or in a small outdoor area.

- Instructions for creating a simple hydroponic system can be found in the Home Application of *Agriculture Module 3: Innovating Agriculture*.

Vertical gardening: Plants can be grown vertically rather than outward by stacking or tethering to save space.

- **Stacking methods:** A plant shelf or ladder with slanted shelves can be utilized for growing plants vertically. Slanted shelves ensure that each plant is getting adequate sunlight. These systems can be placed almost anywhere, including indoors with sun lamps or near a window, and take up much less space than other options. Plant shelves can be purchased from hardware or garden supply stores, or can be built on-site with relatively inexpensive or recycled materials.
- **Tethering methods:** Plants can be tied to a trellis, stake, A-frame, or cage to encourage them to grow upwards against gravity. This method is commonly used outdoors in a garden bed to reduce space occupied by a plant. However, tethering can also be done indoors with a container garden to save even more space. Examples and more information on how to build tethered systems can be found at <http://www.greeneducationfoundation.org/greenthumbchallengesub/start-up-kit/get-set-build-your-garden/1087-vertical-gardening.html>.

Recommended Supplies

The following list includes recommended supplies for building and maintaining an agricultural space. However, not every space is the same or requires the same equipment. Alter the list as needed to meet the needs of your agricultural space.

- **Shovels, rakes, hoes, and trowels**
- **Seeds or seedlings**
- **Soil mix**
- **Watering cans**
- **Garden gloves**
- **Dedicated supply storage**
- **Garbage bins** - It is recommended to have at least three: one each for recycling, compost, and landfill.
- **Wheelbarrows** - Store upside down to prolong longevity, and to keep water from accumulating and attracting insects.
- **Compost** - Instructions for creating a compost pile can be found in the Agriculture Application of *Nutrition Module 3: Nutrition for All*.
- **Garden beds** (if possible) - Information on how to build garden beds is available at <https://growtestdotorg.files.wordpress.com/2013/02/a10.pdf>



Choosing What to Grow

The USDA developed hardiness zones to help distinguish what crops grow well in an area based on average water availability. The hardiness zones can be used to determine what plants will thrive in your area and can be found at <https://garden.org/nga/zipzone/>. At this site, enter your zip code into the search bar and click go. The next page will display the area's hardiness zone along with a Planting Calendar and other information. Select "View our Planting Calendar for your area" for dates of when and how to plant crops that tend to prosper in your area.

Sow seeds indoors: Seeds should be planted and watered indoors during this time frame.

Transplant seedlings into the garden: Remove seedlings from their containers and plant them in an outdoor agricultural space during this time frame. Seedlings may be grown or purchased.

Direct sow seeds: Plant seeds in an outdoor agricultural space during this time frame.

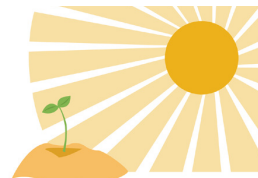
Ground Rules

It is recommended to have a set of rules for the agricultural space. Before entering the agricultural space, share the ground rules with youth. Suggested rules include, 1) keep garden tools below the waist; 2) no running; 3) no killing of any insects; and 4) no stepping inside of garden beds (if present). This list of rules can be expanded and are intended to help ensure the safety of youth while working within the agricultural space. Additionally, these rules promote the health of the space. Stepping in a garden bed would condense the soil and make it more difficult for roots to grow. It is also important for youth to understand that each insect plays an important role in the food chain, which is why we do not want to kill any critters.

Caring for Your Plants

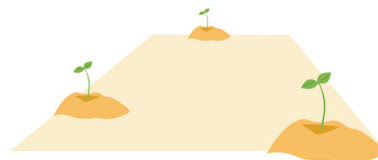
Plants need sunlight, water, space, and nutrients.

Sunlight: Plants require different amounts of sunlight, with some preferring full sun and others preferring partial sun or full shade. Clicking on the plant name in the Planting Calendar, described above, will provide information on the amount of sunlight needed.



Water: Some plants need more water than others. To make it easy, group plants with similar water and sunlight needs together in the agricultural space. Water plants any time the soil becomes dry. It is better to give a long deep soak than to mist the tops of the plants. If you water deep, the roots will be able to grow deeper and become more established.

Space: Overcrowding is an issue that leads to increased competition for resources and can lead to plants getting diseased or dying. To avoid this, allow for adequate space between plants. Clicking on the plant name in the Planting Calendar, described above, will provide information on the amount of space needed.



Nutrients: The three nutrients that plants need most are nitrogen, potassium, and phosphorous. Nitrogen is the most limited nutrient and can be put back in soil by adding compost, fertilizers, or by intermittent planting of legumes. Not only does compost contain nitrogen, it also contains microbes that help aerate the soil. Compost can be purchased from hardware or garden supply stores, or can be made. Instructions for creating a compost pile can be found in the Agriculture Application of Nutrition Module 3: Nutrition for All. The EPA provides additional information about composting, including a list of items that can be composted, at <https://www.epa.gov/recycle/composting-home#home>.

Differentiating a Weed from Your Crops

Sometimes it can be difficult to tell what is your plant and what is a weed that needs to be removed. Below are some tips to help differentiate weeds from your plants.

- Label your plants by writing what you planted and when it was planted on a craft stick or plant marker. This will help you remember where your plants are located and help estimate when to expect growth. Clicking on the plant name in the Planting Calendar, described above, will provide information on approximately how much time is needed before plants are ready to be harvested.
- Create a map of your agricultural space. Draw a schematic to show where each plant is located and state what was planted. You can also write how many seeds or plants were planted and use that information to determine how many plants should be in the space and remove anything else.
- When trying to identify a plant, horticulturalists and botanists, look at the plant's traits like leaves and flowers. If you know what should be planted, you can search online for a picture of it and compare the leaves and flowers to what is growing in your agricultural space. Some plants' mature leaves look different than those of a younger plant so be sure you are comparing to photos of similarly aged plants.

Maintaining Your Agricultural Space

It is best to regularly attend to the agricultural space because it is much easier to pull a couple handfuls of weeds a day than to occasionally go out and pull weeds for several hours. How much maintenance your agricultural space will need is dependent on its size. Additional help may be needed in order to maintain a medium or large agricultural space. In addition to regular help from youth, it is recommended to ask community members, teachers, and parents to volunteer. If possible, reward youth for working in the agricultural space with free produce and credit for community service or volunteer hours.



Common Cooking Equipment

The following is a list of suggested cooking equipment to provide for Teens CAN cooking lessons.



Cooktop

Note: if using portable stovetops, induction is recommended for safety



Cutting board



Colander



Measuring cups



Measuring spoons



Pot holder



Tongs



Slotted spoon



Cooking spoon



4-quart or larger saucepan
Note: if using induction cooktops, be sure to check compatibility



10-inch or larger skillet
Note: if using induction cooktops, be sure to check compatibility



Whisk



Can opener



Vegetable peeler
Note: peelers that come with safety covers are recommended



Kitchen towel



Chef's knife
Note: safety chef's knives designed for children are available online

Educational Standards

Teens CAN: Comprehensive Food Literacy in Cooking, Agriculture, and Nutrition is an innovative curriculum that was developed using Backward Design with Social Cognitive Theory and Constructivism as theoretical frameworks. This curriculum aims to support improving knowledge in a variety of topics relating to food literacy and developing skills to maintain a healthy lifestyle across the lifespan. *Teens CAN* is available for download in both English and Spanish.

How to Use these Standards:

Teens CAN was designed to be implemented sequentially. The lessons are easily modified depending on the target audience and can be implemented in a formal classroom setting or an informal learning environment.

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

Common Core: If a standard is marked with a **bolded** grade level (9), it indicates that the module listed fully fulfills the standard. This includes only lesson activities and agricultural applications and not additional activities, which may provide further application for the standard. If a standard is marked with an underlined grade level (9), 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 fulfill the standard.

*Only grade levels to which standards apply are listed

Next Generation Science Standards (High School)	Grade Level	Activity Modules											
		A 1	A 2	A 3	A 4	N 1	N 2	N 3	N 4	C 1	C 2	C 3	C 4
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	☐	☐	☒	☒	☐		☐	☐			☐	

*Only grade levels to which standards apply are listed

Common Core State Standards Supported in History/Social Studies, Science, and Technical Subjects (9-12)												
	A 1	A 2	A 3	A 4	N 1	N 2	N 3	N 4	C 1	C 2	C 3	C 4
Reading Standards for Literacy in History/Social Studies												
Key Ideas and Details		9, 10	9, 10, <u>11, 12</u>									
Craft and Structure		9, 10	9, 10	9, 10								
Integration of Knowledge and Ideas	-	-	-	-	-	-	-	-	-	-	-	-
Range of Reading and Level of Text Complexity	-	-	-	-	-	-	-	-	-	-	-	-
Reading Standards for Literacy in Science and Technical Subjects												
Key Ideas and Details			9, 10, <u>11, 12</u>				9, 10, <u>11, 12</u>					
Craft and Structure	-	-	-	-	-	-	-	-	-	-	-	-
Integration of Knowledge and Ideas	-	-	-	-	-	-	-	-	-	-	-	-
Range of Reading and Level of Text Complexity	-	-	-	-	-	-	-	-	-	-	-	-
Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects												
Text Types and Purposes	-	-	-	-	-	-	-	-	-	-	-	-
Production and Distribution of Writing	-	-	-	-	-	-	-	-	-	-	-	-
Research to Build and Present Knowledge	-	-	-	-	-	-	-	-	-	-	-	-
Range of Writing	-	-	-	-	-	-	-	-	-	-	-	-

*Only grade levels to which standards apply are listed

Common Core Standards in Mathematics (9-12)												
	A 1	A 2	A 3	A 4	N 1	N 2	N 3	N 4	C 1	C 2	C 3	C 4
Number and Quantity	-	-	-	-	-	-	-	-	-	-	-	-
Algebra	-	-	-	-	-	-	-	-	-	-	-	-
Functions	-	-	-	-	-	-	-	-	-	-	-	-
Modeling	-	-	-	-	-	-	-	-	-	-	-	-
Geometry	-	-	-	-	-	-	-	-	-	-	-	-
Statistics and Probability	-	-	-	-	-	-	-	-	-	-	-	-

Teens CAN does not meet the Common Core Standards for Mathematics.

*Only grade levels to which standards apply are listed

Health Standards (9-12)												
	A 1	A 2	A 3	A 4	N 1	N 2	N 3	N 4	C 1	C 2	C 3	C 4
Nutrition and Physical Activity												
Standard 1 : Essential Concepts				○	●	●	●	●	●			
Standard 2: Analyzing Influences	●	○	●	●	●	●	●	●				
Standard 3: Accessing Valid Information				●				●				
Standard 4: Interpersonal Communication				○								
Standard 5: Decision Making					●	○	●		●	○	○	○
Standard 6: Goal Setting				●	●	●	●		○	○	○	○
Standard 7: Practicing Health-Enhancing Behaviors	○	○		○	●	●	●					
Standard 8: Health Promotion					○	○	○	○	○	○	○	○
Mental, Emotional, and Social Health												
Standard 1 : Essential Concepts				●	○							
Standard 2: Analyzing Influences	-	-	-	-	-	-	-	-	-	-	-	-
Standard 3: Accessing Valid Information	-	-	-	-	-	-	-	-	-	-	-	-
Standard 4: Interpersonal Communication	-	-	-	-	-	-	-	-	-	-	-	-
Standard 5: Decision Making	-	-	-	-	-	-	-	-	-	-	-	-
Standard 6: Goal Setting	-	-	-	-	-	-	-	-	-	-	-	-
Standard 7: Practicing Health-Enhancing Behaviors	-	-	-	-	-	-	-	-	-	-	-	-
Standard 8: Health Promotion	-	-	-	-	-	-	-	-	-	-	-	-

*Only grade levels to which standards apply are listed

Personal and Community Health													
Standard 1: Essential Concepts	○	○	○	○	●	○	●	○	○	○	○	○	○
Standard 2: Analyzing Influences			○	○	○	●	○	○					
Standard 3: Accessing Valid Information									○				
Standard 4: Interpersonal Communication	-	-	-	-	-	-	-	-	-	-	-	-	-
Standard 5: Decision Making					○	○	○						
Standard 6: Goal Setting	-	-	-	-	-	-	-	-	-	-	-	-	-
Standard 7: Practicing Health-Enhancing Behaviors				●						○		○	○
Standard 8: Health Promotion	○		○	○	○	○	○	○	○	○			

Teens CAN does not meet the health standards for the following subsections: *Growth, Development, and Sexual Health; Injury Prevention and Safety; Alcohol, Tobacco, and Other Drugs.*

*Only grade levels to which standards apply are listed



Agriculture Module 1: **Farm to Market Marathon**

BACKGROUND INFORMATION

The **food supply chain** describes the process in which food is produced, transported, and distributed throughout the market. This dynamic process includes many steps and involves several moving parts to get products from the **producer** to the **consumer**. Most products, including everything from cotton sweaters to fresh fruits and vegetables, that can be bought at a local store or online originally come from a farm and are developed through **agriculture**. It is vital that a plot of land is properly prepared by plowing and turning the soil, which will allow for crops to grow more easily. As the seed is growing, the land is watered, and weeds are removed in order for the crop to grow properly.

A common way of consuming goods is through large food production and distribution. After the products are produced at the farm, vehicles, such as trucks, planes, and boats, are used to transport the items. The product is then processed by first line handlers, that sort, store, and package items to create finished food products. These finished products are then transported and sold to warehouses through wholesale. Manufacturers then provide these goods to retail food sectors such as grocery stores, restaurants, and vending machine companies for individual consumers to purchase. The consumer is then the last actor in the food supply chain. How far the food is transported determines the amount of **food miles** needed to get the

products from the producer to the consumers' homes.

Once the crop is produced and ready to sell, there are different types of markets a producer can contribute their product to within the food supply chain. If there is a small amount of product produced, farmers sell their crops through **direct marketing**. Food supply chains that use direct marketing are generally shorter and promote purchasing fresh products. In this type of exchange, the farmer delivers their goods directly to individual consumers. A **farmers market** is a designated area in which this process takes place on a local scale. Through direct marketing, the financial gain of the produce may be greater for the local farmers because the consumer is directly paying the producer for their goods with little to no transportation, packaging, or retail store fees included. Another popular direct marketing concept is Community Supported Agriculture (CSA) programs. Local farmers may use a CSA program to generate a more constant source of revenue because consumers subscribe to receiving a weekly or biweekly produce box. Consumers can pick-up their boxes from the farm, at a local drop-off site, or the farmer may even deliver the boxes directly to the consumers' houses.

CONCEPTS AND VOCABULARY

Agriculture: The process of preparing a piece of land to grow and produce crops and other items that can be used for consumer markets such as food, clothes, and fuel

Consumer: An individual or manufacturer that buys products from an entity that creates goods

Direct marketing: The direct purchasing of food from the farmers that produced the food in order to promote local businesses, agriculture, and lessen the amount of transportation required for the good to reach the consumer

Farmers market: A designated area where local farmers vend their products, primarily fruits, vegetables, meats, dairy products, and baked goods to consumers fruits, vegetables, meats, dairy products, and baked goods to consumers

Food miles: The distance required for food to travel from the producer to the consumer

Food supply chain: The process of how food items are produced and distributed from the producer to the consumer in a complex and systematic way

Producer: An individual or manufacturer that creates or grows goods

MATERIALS NEEDED

- ☐ Flip chart paper
- ☐ Writing utensils
- ☐ Tape or glue
- ☐ Scissors, two per group
- ☐ *Strawberry and Strawberry Jam* (Appendix A1.1), one per group
- ☐ *Food Supply Chain* (Appendix A1.2), one per group
- ☐ *Food Supply Chain Answer Key* (Appendix A1.3), one per group

TIME REQUIRED

45 to 60 minutes

SUGGESTED GROUPINGS

Small groups of 3 to 4

Materials provided in curriculum

GETTING READY

- ☐ Make copies of *Strawberry and Strawberry Jam* (Appendix A1.1), one for each group.
- ☐ Make copies of *Food Supply Chain* (Appendix A1.2), one for each group. Tape or glue the four sheets together so that page 2 overlaps onto page 1 and page 4 overlaps onto page 3 at the blue line. Reference the complete flow chart using the *Food Supply Chain Answer Key* (Appendix A1.3) if needed.
- ☐ Make double-sided copies of *Food Supply Chain Answer Key* (Appendix A1.3), one for each group.

Facilitator tip: It is recommended that the Food Supply Chain Answer Key be laminated to allow it to be more easily handled by youth and reused.

- ☐ Organize youth into small groups of 3 – 4 youth.
- ☐ Provide each group with one sheet of flip chart paper and writing utensils to answer opening questions.

OPENING QUESTIONS

Ask the youth to respond to each question/prompt below by recording their responses on the flip chart paper provided and sharing their ideas verbally.

- Explain what you know about how food is produced.
- Explain what you know about how food gets from a farm to your plate.

PROCEDURE (EXPERIENCING)

1. Provide each group with *Strawberry and Strawberry Jam*, *Food Supply Chain*, and two pairs of scissors.
2. Explain that *Strawberry and Strawberry Jam* includes the steps, out of order, of how strawberries make it from the strawberry field to the plate as either fresh strawberries or strawberry jam.
3. Ask youth to read the various boxes and cut them out along the bold line.
4. Ask youth to complete the *Food Supply Chain* for fresh strawberries and strawberry jam by placing the pieces they just cut out onto the *Food Supply Chain* in the correct order from producer to consumer. All boxes will be used once in completing the food supply chain and there are two sheets of boxes.
5. Once groups have completed the *Food Supply Chain*, provide each group with a *Food Supply Chain Answer Key* and ask youth to compare the food supply chain they constructed with the one in the *Food Supply Chain Answer Key*.

SHARING, PROCESSING, AND GENERALIZING

Have the youth share their *Food Supply Chain* and discuss how they determined the order of the segmented pieces and whether their figure differed from that in the *Food Supply Chain Answer Key*.

Follow the lines of thinking developed through the youth's thoughts, observations, and questions as they share what they discovered about the food supply chain. If necessary, ask more targeted questions.

- Explain why some steps in the food supply chain take longer than others (denoted by longer arrows on the *Food Supply Chain*).
- Explain how the steps for the grocery store differ from those of the farmers market.
- Explain how the steps for fresh strawberries differ from those of the strawberry jam.
- Describe how you think technological innovations over time may have helped improve the food chain process.

CONCEPT AND TERM DISCOVERY/INTRODUCTION

Make sure youth understand that the **food supply chain** is complex set of interdependent steps that require input and maintenance from several different roles. Youth should also recognize that the steps of the food supply chain can vary depending on the end product, the point of sale location, and a host of other factors. The ultimate goal of the food supply chain is to efficiently get products from the **producer** to the **consumer**. Additionally, make sure that key vocabulary terms are either discovered by the youth or introduced to them: **agriculture**, **direct marketing**, **farmers market**, and **food miles**.

AGRICULTURE APPLICATION

MATERIALS NEEDED

- ☐ *Farm Tour Guide* (Appendix A1.4), one per group
- ☐ Clipboards, one per group (recommended)
- ☐ Writing utensils
- ☐ Transportation to an agricultural system, if applicable
- ☐ Agriculture maintenance equipment

TIME REQUIRED

20 to 30 minutes

SUGGESTED GROUPINGS

Small groups of 3 to 4

Materials provided in curriculum

GETTING READY

- ☐ Coordinate with a local producer to have the youth tour their agricultural system or to have the producer visit your agricultural space.
- ☐ Make copies of *Farm Tour Guide* (Appendix A1.4), one for each group.
- ☐ Supply enough materials to allow each youth to maintain their designated area in the agricultural space.
- ☐ Organize youth into small groups of 3 – 4 youth.

Facilitator tip: These can be the same groups that were formed in previous lessons. By doing so, the youth may continue developing teamwork skills with the same group members.

PROCEDURE (EXPERIENCING)

1. Provide each group with *Farm Tour Guide*, writing utensils, and a clipboard (if using).
2. Provide a brief introduction for the producer and explain to the youth that they will be completing the *Farm Tour Guide* while the producer discusses their role in the food supply chain and how their products get to consumers. If applicable, the youth will also be touring the producer's agricultural system.
3. With any time remaining, lead youth in maintaining their designated growing section. This may include discarding weeds, supplying additional nutrients, and watering plants.

SHARING, PROCESSING, AND GENERALIZING

Have the youth share their *Farm Tour Guide* and discuss the operation they learned about from the producer and how it fits into the food supply chain. Follow the lines of thinking developed through the youth's thoughts, observations, and questions as they share what they discovered about the producer's agricultural system.

HOME CONCEPT APPLICATION

MATERIALS NEEDED

- *Interview* (Appendix A1.5), one per youth

TIME REQUIRED

5 to 10 minutes

Materials provided in curriculum

GETTING READY

- Make copies of *Interview* (Appendix A1.5), one for each youth.

PROCEDURE (EXPERIENCING)

1. Provide each youth with a copy of *Interview*.
2. Ask youth to identify someone they know who has a role in the food supply chain.
3. Ask youth to use *Interview* to ask that person about their role in the food supply chain.

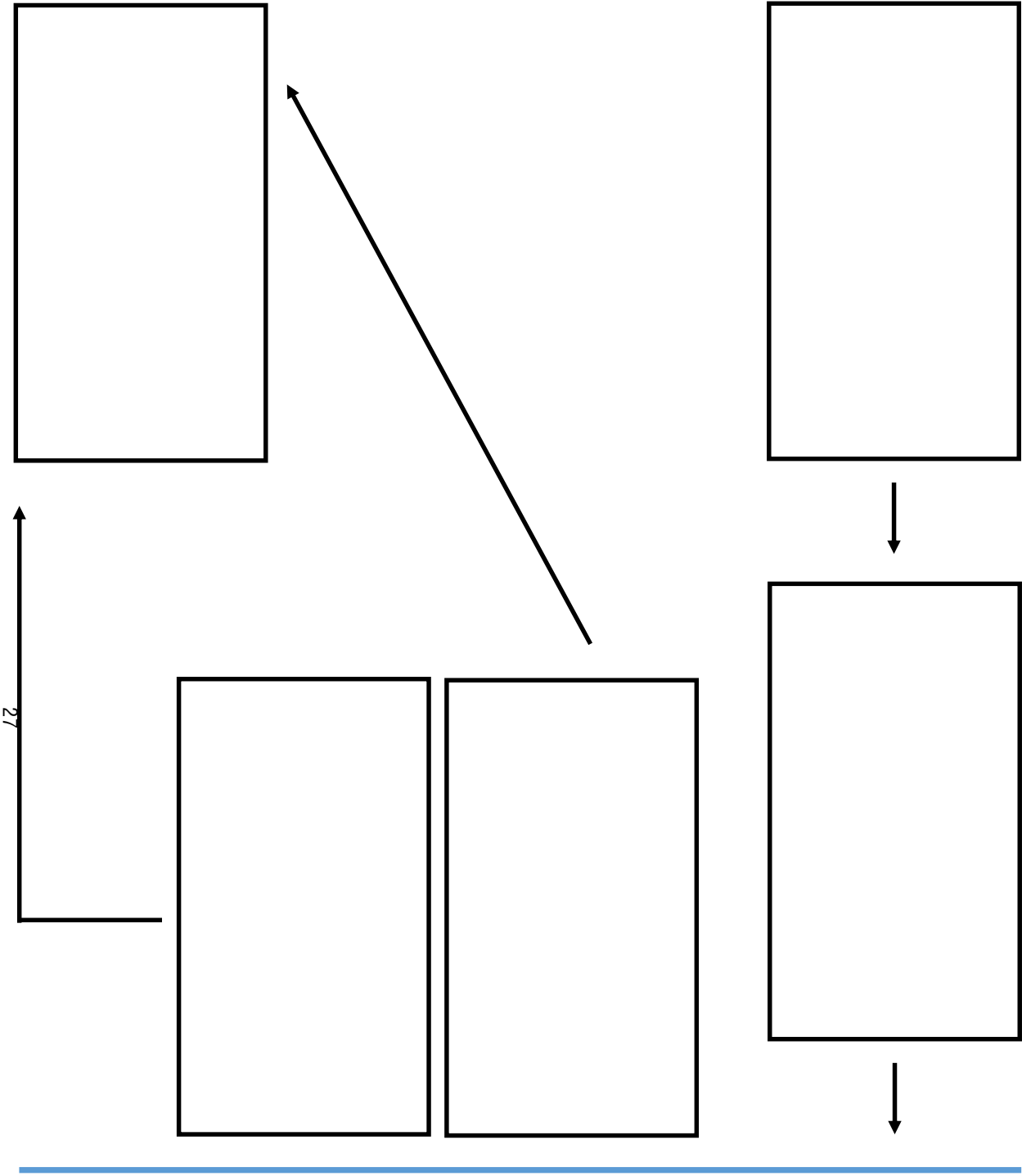
SHARING, PROCESSING, AND GENERALIZING

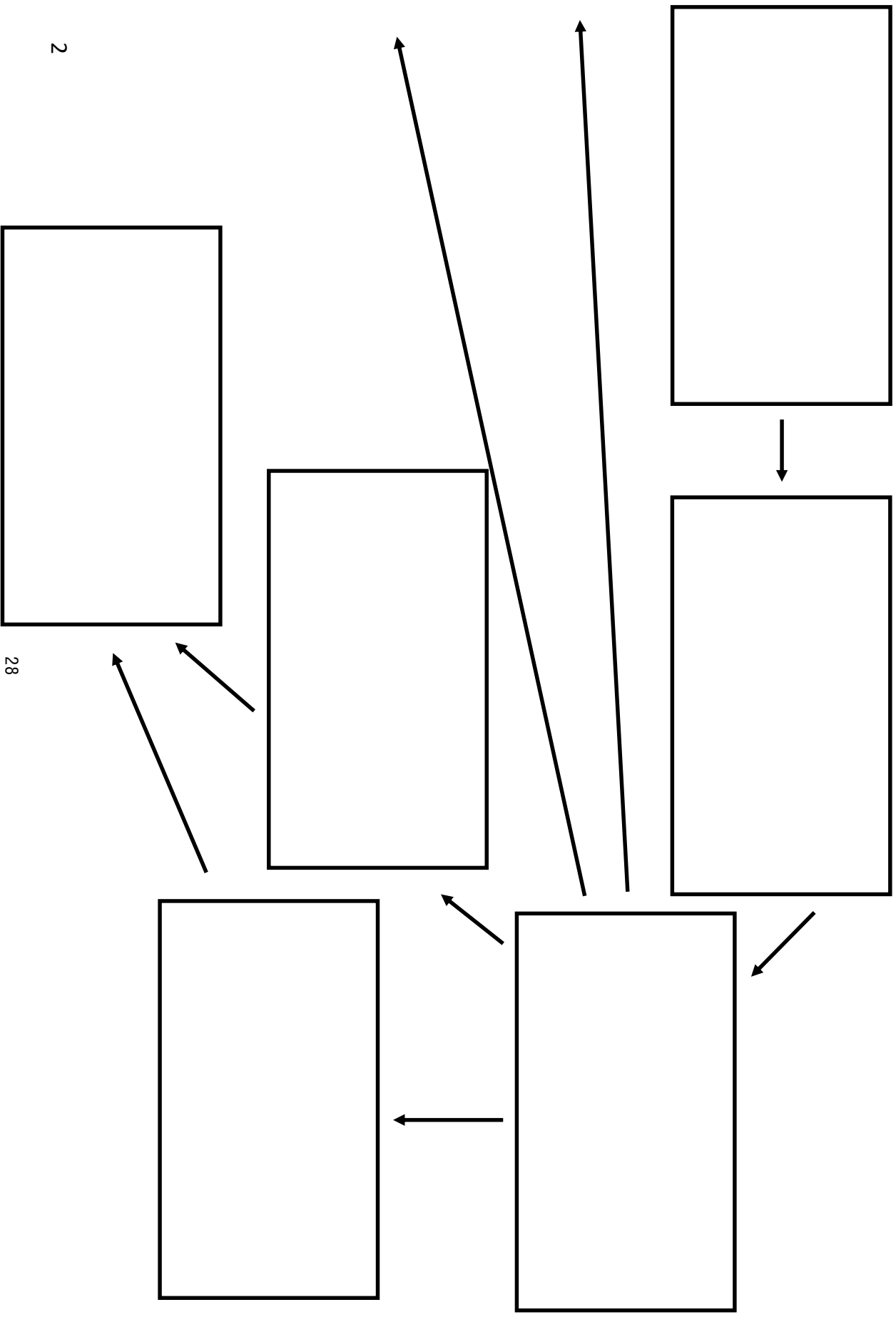
Have the youth share their *Interview* and discuss how the person they interviewed fits into the food supply chain. Follow the lines of thinking developed through the youth's thoughts, observations, and questions as they share what they discovered about the various roles in the food supply chain.

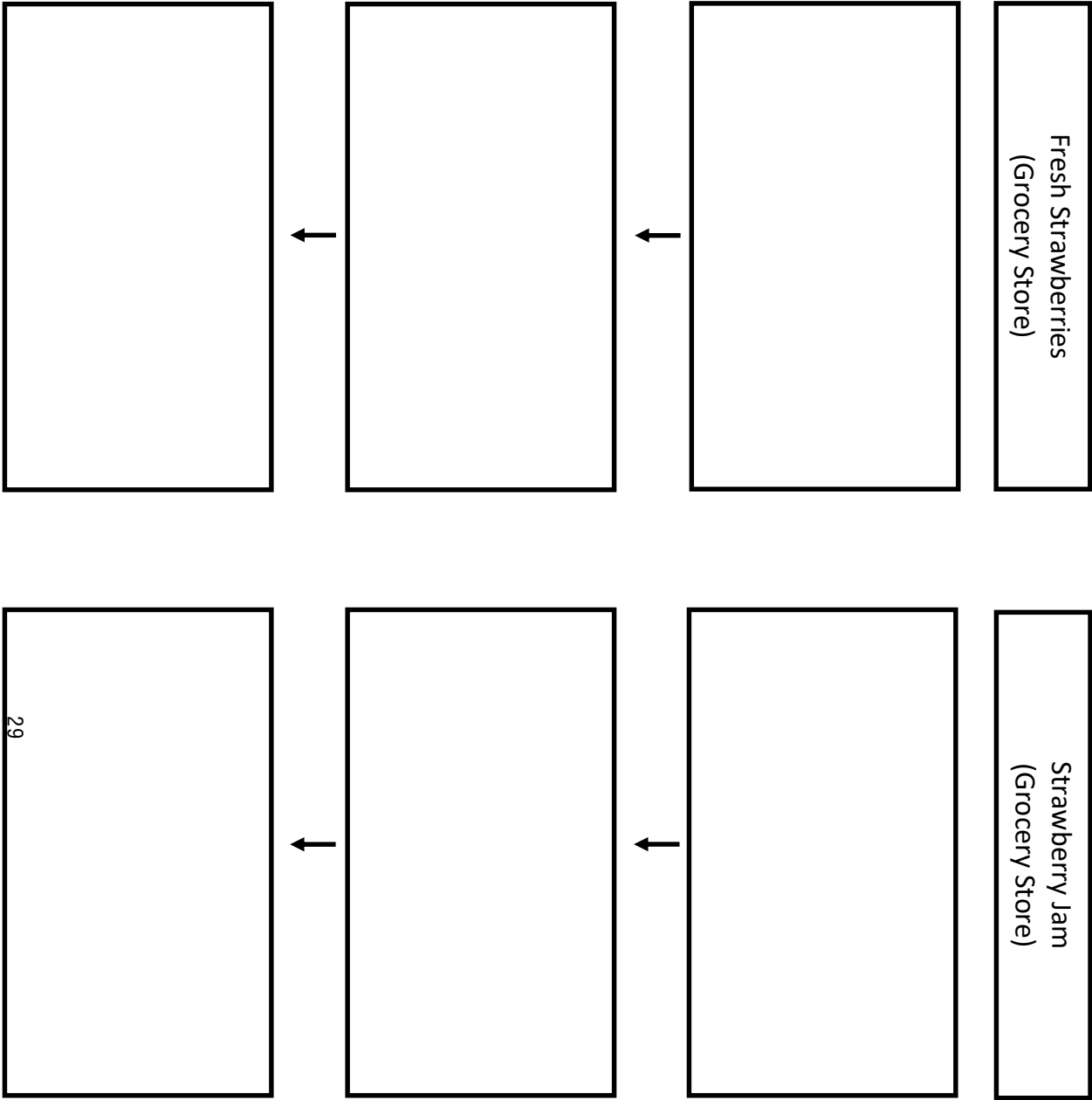
Directions: It is your task to figure out how fresh strawberries make it from the strawberry field to your plate. To do this, cut and paste the following boxes onto the Food Supply Chain worksheet

Strawberries are fully ripe	Fresh strawberries are packaged to be sold at the farmers market	After purchasing strawberries, wash them and enjoy!
Strawberry jam is purchased by consumers and taken home to enjoy	Fresh strawberries are transported to the distribution center to be packaged and refrigerated	Ripe fresh strawberries arrive at the grocery store
Fresh strawberries are handpicked, which requires a lot of physical labor	It's 6am! It's time for labor workers to go to work to harvest	Strawberry jam is priced, labeled with an expiration date (~6–9 months), recorded into inventory, and stocked
Fresh strawberries and homemade strawberry jam are transported to the farmers market	Fresh strawberries are locally made into jam and packaged for sale	Fresh strawberries and strawberry jam are packed onto a truck and transported to the grocery store

Strawberry jam arrives at the grocery store	Homemade strawberry jam arrives at the farmer's market	Fresh strawberries are transported to a factory to be processed into jam and packaged for sale
Fresh strawberries are displayed and labeled for sale	Fresh strawberries are priced, labeled with an expiration date (~1-week shelf life), recorded into inventory, and stocked	After purchasing strawberries, wash them and enjoy!
Farmers prepare land to transplant strawberry plants into the growing beds	Strawberry jam is purchased by consumers and taken home to enjoy	Strawberry jam is displayed and labeled for sale
The harvested strawberries are sorted	Ripe fresh strawberries arrive at the farmer's market	







Fresh Strawberries
(Farmers Market)

An empty rectangular box with a black border, intended for a description or image related to fresh strawberries from a farmers market.



An empty rectangular box with a black border, intended for a description or image related to the product below.



An empty rectangular box with a black border, intended for a description or image related to the product below.

Strawberry Jam
(Farmers Market)

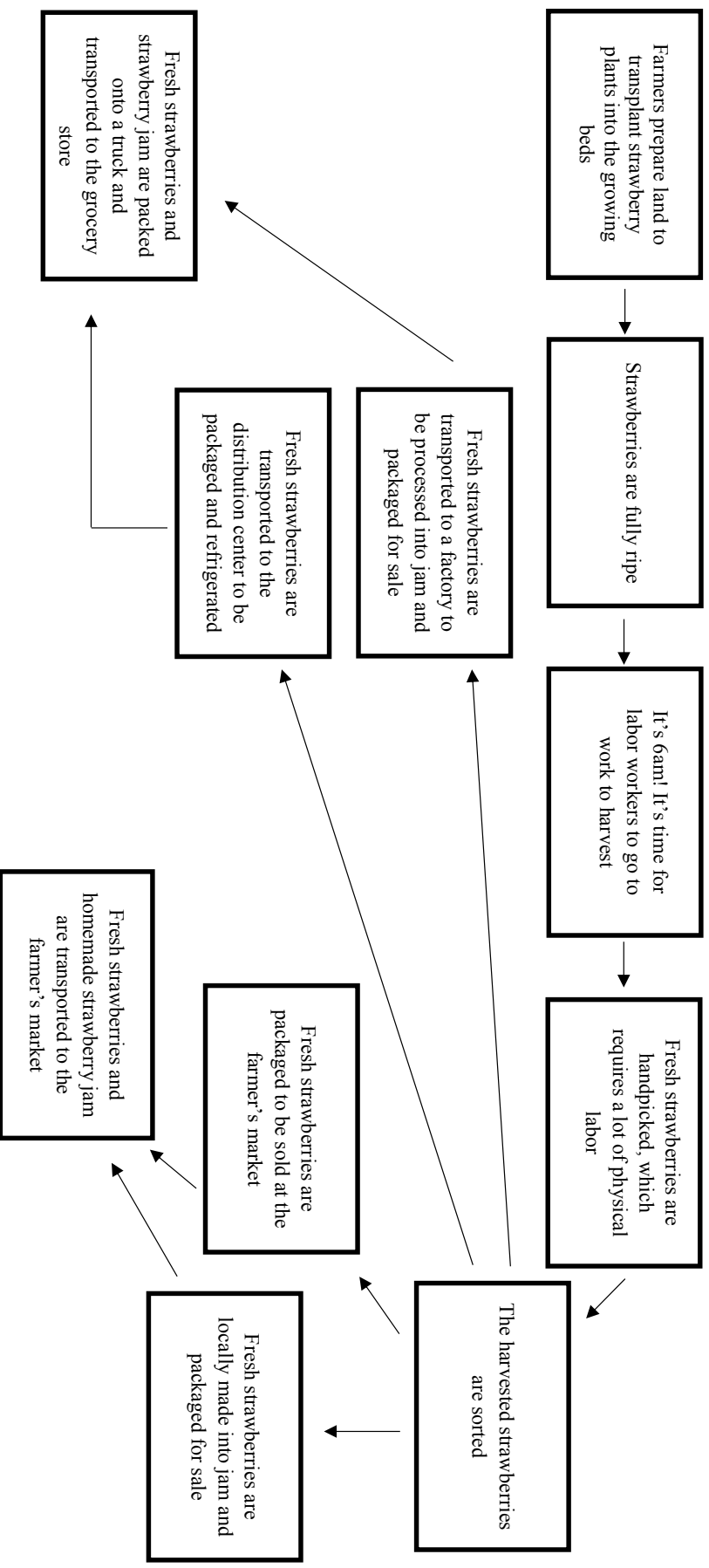
An empty rectangular box with a black border, intended for a description or image related to strawberry jam from a farmers market.

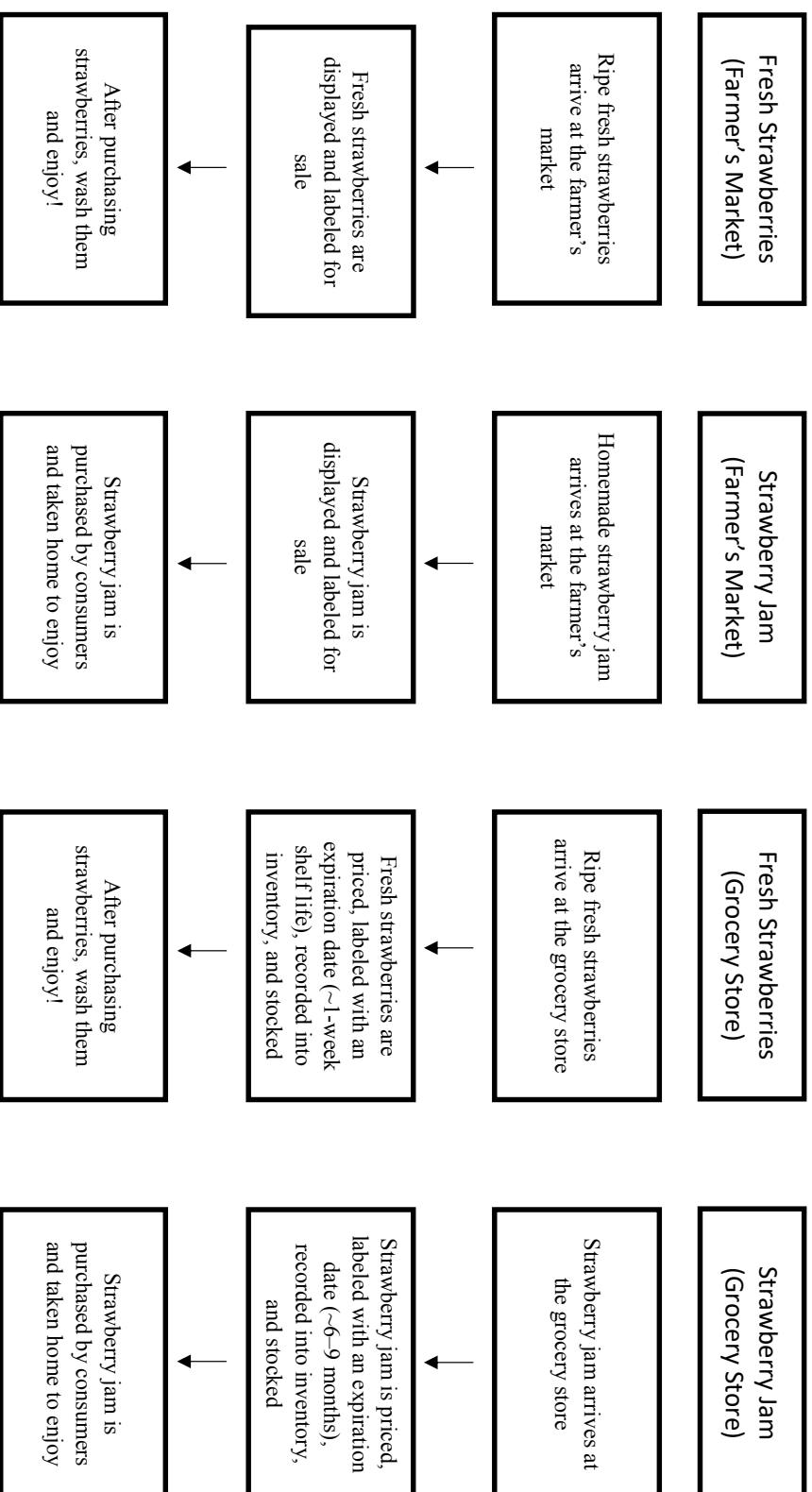


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An empty rectangular box with a black border, intended for a description or image related to the product below.





Directions: Complete the following tables for the producer's agricultural system.

Producer name:
Producer occupation:
Site name:
Type of agricultural system:

Products grown:	Steps needed to produce products:
Steps needed to transport products:	Steps needed to distribute products:
Places products are sold:	Uses of products:

Teens CAN Curriculum



Want access to the full curriculum?
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and let's discuss partnership
opportunities!