



Discovering Healthy Choices

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Table of Contents

Acknowledgments	2
Facilitator Tips: How to get the most from this curriculum	4
Educational Standards Supported	9
Module 1: Introduction to Nutrition , Agriculture, and Gardening	15
Module 2: Getting Physically Active	33
Module 3: Nutrients We Need	57
Module 4: Food Math	81
Module 5: MyPlate	93
Module 6: Food Labels	123
Module 7: Consumerism	139
Module 8: Making Healthy Snacks	153
Photo, Graphic, and Illustration Credits	177
References	178

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Adapted from *Nutrition to Grow On*

This curriculum is an adaptation of *Nutrition to Grow On*, a garden-enhanced nutrition curriculum for upper elementary school children. Authors: Jennifer Morris and Sheri Zidenberg-Cherr, Department of Nutrition, University of California, Davis in collaboration with the California Department of Education and Mary Shaw, Solano County Master Gardener, University of California Cooperative Extension.

Results from Research

This curriculum was tested as part of the Shaping Healthy Choices Program research project during the 2012–2013 school year. Fourth grade youth participating in the Shaping Healthy Choices Program increased knowledge about nutrition and consumption of vegetables, and the rates of obesity were reduced from 56% to 38% (Scherr et al. 2014). In a subsequent study the Discovering Healthy Choices curriculum was implemented by fourth-grade teachers as part of the Shaping Healthy Choices Program in the 2013–2014 school year. Participating youth improved their knowledge about nutrition, critical thinking skills, and ability to identify vegetables (Linnell et al. 2016). Additionally, there was a significant reduction in average body mass percentile-for-age. The Shaping Healthy Choices Program was then piloted through the University of California CalFresh SNAP-Ed program and University of California Cooperative Extension and positive outcomes were observed, though they varied among implementation sites (Bergman et al. 2018). The research team attributed the variation to differences in fidelity to the curriculum, with the highest fidelity corresponding to the greatest improvements in outcomes.

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Facilitator Tips: How to Get the Most from This Curriculum

Teaching and Learning Strategies

All activities in the *Discovering Healthy Choices* curriculum were designed using experiential learning and inquiry. Experiential learning is grounded in the idea that experience is essential to learning and understanding. Specifically, experiential learning involves a recurring sequence of three distinct steps: 1) an experience (“Procedure/Experiencing”) that involves learner exploration; 2) a period of discussion and reflection (“Sharing, Processing, and Generalizing”), where learners share their reactions and observations, process their experience, and make generalizations to real-life examples; and 3) an opportunity to apply (“Apply”) new knowledge and skills in an authentic manner, which helps learners deepen and broaden their understanding (it helps learning last!).

Inquiry is a teaching and learning strategy whereby learners are engaged in activities that require the observation and manipulation of objects and ideas in order to construct knowledge and develop skills. Inquiry is grounded in experience, focuses on the use and development of critical thinking skills, and targets the learning and application of specific content knowledge. Furthermore, inquiry starts with a question, and effective questioning strategies are critical when facilitating inquiry-based learning. Open-ended questions or prompts (e.g., “Explain what you know about...”; or “Discuss your understanding of...”) promote learner inquiry and are considered more effective than closed-ended questions or prompts (e.g., “Name the parts of...”; or “What is the name of...?”).

The inquiry-based activities in the *Discovering Healthy Choices* curriculum were designed using the 5-step Experiential Learning Cycle by Pfeiffer and Jones (1983): Experience, Sharing, Processing, Generalizing, and Application. It is recommended that adequate time be allotted for youth learners to proceed through each step in order for learning to be maximized.

Behavior Change Strategies

As part of *Discovering Healthy Choices*, learners will discover nutrition concepts through hands-on and garden-based nutrition activities. Garden-based activities allow youth to enhance nutrition knowledge, preferences for vegetables, and consumption of fruits and vegetables, and also gives them an opportunity to explore agriculture and the environment while improving life skills, self-esteem, social skills, and behavior (Heim et al. 2009; Jaenke et al. 2012; Lineberger and Zajicek 2002; Linnell et al. 2016; McAleese and Rankin 2007; Morgan et al. 2010; Morris and Zidenberg-Cherr 2002; Parmer et al. 2009; Robinson-O’Brien et al. 2009; Scherr et al. 2014).

The *Discovering Healthy Choices* curriculum activities were designed using the Social Cognitive Theory as a framework (Glanz and Viswanath 2008). The structure and content of the activities address Social Cognitive Theory domains of behavioral capability, self-efficacy, and reciprocal determinism. A detailed description of how the behavior change strategies were applied is available elsewhere (Linnell et al. 2016).

Target Audience

Discovering Healthy Choices was developed for youth in upper elementary school (grades 4–6) and to be used in formal and non-formal educational settings. Curriculum activities support educational standards for grades K–12 and may be adapted for use in other grade levels.

Facilitator Tips: How to Get the Most from This Curriculum (cont.)

Organization of the Learning Environment: Creating Environments Where Learning Happens

The activities in the *Discovering Healthy Choices* curriculum were designed to be facilitated in a small group-learning environment. Learners construct understanding through inquiry using observations, the manipulation of objects and ideas, and personal reflection. However, learning is a social endeavor where dialogue and reflection with others are critical elements. Therefore, creating physical and social environments where learners can carry out inquiry will help learners organize their thoughts and develop an understanding of the content and processes being emphasized in specific curriculum activities.

Organization of the Curriculum

The modules are sequenced so that foundational concepts are discovered first and then built upon with more advanced concepts as they continue through the modules.

Each module consists of one hands-on activity, one application activity in the instructional garden, and multiple take-home application activities. When learners apply their new knowledge and skills in authentic situations, this is when they are able to develop deeper understanding of the subject matter. At this point, youth have already completed the hands-on activities that have introduced new concepts and skills. The application activities provide the youth with the opportunity to take what they have learned and apply it to independent, real-world situations in the instructional garden, at home, or in the classroom. This application of knowledge is a critical step of the learning process.

Curriculum Activity Layout

- **Activity Title**

The activity title introduces the facilitator to the topic that will be addressed during the activity.

- **Background Information**

This introductory section provides facilitators with a brief overview of the subject matter and provides examples that help to explain the importance of the topic.

Facilitator Tip: The background information is not meant to be shared with the youth prior to the activity. Rather, it is intended to support facilitators by providing factual information that may help ground and inform group discussions.

- **Life Skills**

Life skills are abilities that help youth become productive, contributing members of society. The activities are designed to provide youth with the opportunity to practice particular life skills that are utilized in everyday life. The life skills targeted are listed for each activity (Norman and Jordan n.d.).

- **Subject Links**

This describes other subject areas that are connected to the module. **Education Standards Supported**

This curriculum supports Common Core State Standards, Next Generation Science Standards, and California Nutrition Education Competencies. Specific details for standards addressed for each grade level is described in the “Education Standards Supported” section on page 9.

- **Time Required**

Each module includes an estimate of the time needed to complete the activities. The actual time required for the activities will vary based on level of learner interest, size of the group, age of the group members, and the setting in which the activities take place.

Facilitator Tips: How to Get the Most from This Curriculum (cont.)

- **Learning Objectives: Concepts and Vocabulary**

Facilitators are provided with a list of defined concepts and vocabulary that is meant to be discovered by the youth during their exploration and completion of the activities. The list should not be provided to the youth at the beginning of the activity. At the end of each activity, the facilitators should ensure that the appropriate terms and concepts have been discovered by or introduced to the youth.
- **Suggested Groupings**

Suggestions are provided for the group size designed for each activity. The suggested groupings are meant to help facilitate quality learning among the youth. Some activities are designed for youth to work in either small groups, large groups, or individually.
- **Materials Needed**

A list of the materials needed to complete the activities is provided for the facilitator. The list describes the materials to be used. Most materials are provided (these are marked with an *); however, other materials will need to be obtained prior to activity implementation.
- **Getting Ready**

This list describes what needs to be done by the facilitator to prepare for the activity, how many of each of the materials to prepare, and what tasks need to be completed prior to the beginning of the activity.
- **Opening Questions/Prompts**

Questions or prompts presented at the beginning of each activity are meant to draw the youth into the topic being addressed in the activity. Responses to the questions will provide the facilitator with an understanding of what the youth already know about the topic. Facilitators should encourage the youth to record their answers to these introductory questions on the provided flip chart paper, as this is an important part of the learning process. This is the point when the activity begins with the youth. Opening Questions/Prompts should be asked as they are written. Open-ended questioning is a key element of inquiry-based learning.
- **Procedure (Experiencing)**

This is the part of the curriculum when the youth experience and complete the activity itself. It is highly recommended that facilitators read the procedure in its entirety before implementing with the youth so that the activity flows smoothly. It is important for youth to record their observations, ideas, and other thoughts during the procedure on the flip chart paper provided, as this is an important part of the learning process.
- **Facilitator Tips**

These are suggestions and additional information for the facilitator.
- **Sharing, Processing, and Generalizing**

Following the procedure, there is a period of reflection, during which time the youth come back together as one group and share their observations with each other. This phase provides youth an opportunity to communicate their findings, listen to what others discovered, consider the various thought processes, and learn from each other. It helps to solidify what the youth have learned throughout the course of the activity. This phase also contains prompts that allow the youth to engage in thinking about how they went about solving a problem. This is called meta-cognition, which is considered a key element in developing a deeper understanding.
- **Concept and Term Discovery/Introduction**

At this point of the activity, most of the concepts will have most likely already been discovered by the youth. Many concepts will have already been defined by now as well. However, some concepts may have been missed or poorly understood and need to be clarified; additionally, technical terms may need to be introduced to the youth. Ensure that all terms/concepts have been discovered or introduced to the youth. Additionally, make certain that any misconceptions have been addressed.

Facilitator Tips: How to Get the Most from This Curriculum (cont.)

Starting an Instructional Garden

- **Books and Downloadable Resources**

Gardens for Learning: A Guide for Creating and Sustaining Your School Garden. Available at the California School Garden Network website, <http://www.csgn.org>.

Getting Started: A Guide for Creating School Gardens as Outdoor Classrooms. Available at the Center for Eco Literacy website, <http://www.ecoliteracy.org/downloads/getting-started>.

Sunset Western Garden Book (9th ed). 2012. New York, NY: Time Home Entertainment.

- **School Garden Grant Opportunities**

California Fertilizer Foundation awards grants of \$1,200 to California K–12 school garden programs. Awards include educational materials. Applications reviewed in January and June. The grant application is available at the California Fertilizer Foundation website, <http://www.calfertilizer.org>.

KidsGardening offers a variety of grant programs with awards of up to \$500. Information about grants is available at the KidsGardening website, <https://kidsgardening.org>.

Western Growers Foundation offers grants and start-up supplies for school gardens in California and Arizona. Information and grant applications are available at the Western Growers Foundation website, <http://www.wga.com>.

Extension Opportunities Beyond the Learning Setting

Discovering Healthy Choices was developed as part of the Shaping Healthy Choices Program. The Shaping Healthy Choices Program is a multicomponent approach to improving children's food choices. Other components of this program include a curriculum for cooking demonstrations, *Cooking Up Healthy Choices*, and family newsletters called *Team Up for Families*.

Cooking Up Healthy Choices is directly linked to *Discovering Healthy Choices*. It was developed to offer more opportunities for youth to apply the concepts they have learned through the participation in five cooking demonstrations.

The *Team Up for Families* newsletters include messages about what the youth are learning in the *Discovering Healthy Choices* curriculum, in addition to positive nutrition-related parenting practices. Each of the eight newsletters is designed to link to each of the eight modules in *Discovering Healthy Choices*.

Food Safety and Other Considerations

The *Discovering Healthy Choices* curriculum includes activities where food is prepared for consumption and for handling. When preparing foods, it is important to follow food safety guidelines published by the Food and Drug Administration at their website, <http://www.fda.gov/Food/FoodborneIllnessContaminants/BuyStoreServeSafeFood/ucm255180.htm>. It is also important to be aware of youths' food allergies and alter recipes accordingly.

Facilitator Tips: How to Get the Most from This Curriculum (cont.)

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Educational Standards Supported

Next Generation Science Standards Supported

	Modules	K	1	2	3	4	5	6	7	8	9	10	11	12
Life Science Progression														
LS1.A Structure and function	2, 3													
LS1.C Organization for matter and energy flow in organisms	2, 3, 5													
LS2.A Interdependent relationships in ecosystems	2, 3, 7													
LS2.B Cycles of matter and energy transfer in ecosystems	2, 3, 7													
LS4.D Biodiversity and humans	2, 3, 7													
Science and Engineering Practices														
1. Asking questions and defining problems	1, 2, 3, 4, 5, 6, 7, 8													
3. Planning and carrying out investigations	2, 3, 4, 5, 7													
4. Analyzing and interpreting data	2, 3, 4, 5, 7, 8													
5. Using mathematics and computational thinking	2, 4, 6													
6. Constructing explanations and designing solutions	2, 3, 4, 8													
7. Engaging in argument from evidence	1, 2, 3, 4, 7													
8. Obtaining, evaluating, and communicating information	1, 2, 3, 4, 5, 6, 7, 8													
Crosscutting Concepts														
1. Patterns	2, 3, 4, 5, 7, 8													
3. Scale, Proportion, and Quantity	2, 3, 4, 6, 8													

- Standard is not applicable for grade level

• Supports standard for grade level

• Can be adapted to support standard for grade level

Educational Standards Supported (continued)

Common Core State Standards in English Language Arts Supported

	Modules	K	1	2	3	4	5	6	7	8	9	10	11	12
Reading Standards for Literature														
Key Ideas and Details	1	•	•	•	•	•	•	•	•	•	•	•	•	•
Craft and Structure	1, 2, 3, 4, 5, 6, 7, 8	•	•	•	•	•	•	•	•	•	•	•	•	•
Range of Reading and Level of Text Complexity	1, 2, 3, 4, 5, 6, 7, 8	•	•	•	•	•	•	•	•	•	•	•	•	•
Reading Standards for Informational Text														
Key Ideas and Details	1, 2, 3, 5	•	•	•	•	•	•	•	•	•	•	•	•	•
Craft and Structure	1, 2, 3, 5, 6	•	•	•	•	•	•	•	•	•	•	•	•	•
Integration of Knowledge and Ideas	1, 3, 7	•	•	•	•	•	•	•	•	•	•	•	•	•
Range of Reading and Level of Text Complexity	1, 2, 3, 4, 5, 6, 7, 8	•	•	•	•	•	•	•	•	•	•	•	•	•
Reading Standards: Foundational Skills														
Print Concepts	1, 2, 3, 4, 5, 6, 7, 8	•	•	-	-	-	-	-	-	-	-	-	-	-
Phonological Awareness	1, 2, 3, 4, 5, 6, 7, 8	•	•	-	-	-	-	-	-	-	-	-	-	-
Phonics and Work Recognition	1, 2, 3, 4, 5, 6, 7, 8	•	•	•	•	•	•	-	-	-	-	-	-	-
Fluency	1, 2, 3, 4, 5, 6, 7, 8	•	•	•	•	•	•	-	-	-	-	-	-	-
Writing Standards														
Text Types and Purposes	1, 2, 3, 4, 5, 6, 7, 8				•	•	•	•	•	•	•	•	•	•
Production and Distribution of Writing	1				•	•	•	•	•	•	•	•	•	•
Research to Build and Present Knowledge	1, 2, 3, 4, 5, 6, 7, 8	•	•	•	•	•	•	•	•	•	•	•	•	•
Range of Writing	1, 2, 3, 4, 5, 6, 7, 8	-	-	-	•	•	•	•	•	•	•	•	•	•
Speaking and Listening Standards														
Comprehension and Collaboration	1, 2, 3, 4, 5, 6, 7, 8	•	•	•	•	•	•	•	•	•	•	•	•	•
Presentation of Knowledge and Ideas	1, 2, 3, 4, 5, 6, 7, 8	•	•	•	•	•	•	•	•	•	•	•	•	•
Language Standards														
Conventions of Standard English	1, 2, 3, 4, 5, 6, 7, 8	•	•	•	•	•	•	•	•	•	•	•	•	•
Knowledge of Language	1, 2, 3, 4, 5, 6, 7, 8	-	-	•	•	•	•	•	•	•	•	•	•	•
Vocabulary Acquisition and Use	1, 2, 3, 4, 5, 6, 7, 8	•	•	•	•	•	•	•	•	•	•	•	•	•

- Standard is not applicable for grade level

- Supports standard for grade level
- Can be adapted to support standard for grade level

Educational Standards Supported (continued)

Common Core State Standards Supported in Literacy in History/Social Studies, Science, and Technical Subjects 6-12

	Modules	6	7	8	9	10	11	12
Reading Standards for Literacy in History/Social Studies								
Integration of Knowledge and Ideas	1, 2, 4	•	•	•	•	•		
Reading Standards for Literacy in Science and Technical Subjects								
Key Ideas and Details	2, 3, 4	•	•	•	•	•	•	•
Integration of Knowledge and Ideas	2, 3, 4	•	•	•	•	•	•	•
Range of Reading and Level of Text Complexity	2, 3, 4, 5, 6, 7, 8	•	•	•	•	•	•	•
Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects								
Text Types and Purposes	1, 2, 3, 4, 5, 6, 7, 8	•	•	•	•	•	•	•
Production and Distribution of Writing	1, 2, 3, 4, 5, 6, 7, 8	•	•	•	•	•	•	•
Research to Build and Present Knowledge	1, 2, 3, 4, 5, 6, 7, 8	•	•	•	•	•	•	•
Range of Writing	1, 2, 3, 4, 5, 6, 7, 8	•	•	•	•	•	•	•

- Standard is not applicable for grade level

- Supports standard for grade level
- Can be adapted to support standard for grade level

Educational Standards Supported (continued)

Common Core State Standards in Mathematics

	Modules	K	1	2	3	4	5	6	7	8	9	10	11	12
Counting and Cardinality	2, 4, 5, 6	•	-	-	-	-	-	-	-	-	-	-	-	-
Operations and Algebraic Thinking	2, 3, 4, 5, 6	•	•	•	•	•	-	-	-	-	-	-	-	-
Number and Operations in Base Ten	2, 4, 5, 6	-	-	-	•	-	•	-	-	-	-	-	-	-
Number and Operations - Fractions	4, 5, 6, 7	-	-	-	•	•	•	-	-	-	-	-	-	-
Measurement and Data	2, 3, 4, 5, 6	•	•	•	•	•	•	-	-	-	-	-	-	-
Geometry	2, 3, 4, 5	•	•	-	-	-	•	-	-	-	-	-	-	-
Ratios and Proportional Relationships	2	-	-	-	-	-	-	•	-	-	-	-	-	-
The Number System	4, 5, 6	-	-	-	-	-	-	•	-	-	-	-	-	-
Statistics and Probability	2	-	-	-	-	-	-	•	-	-	-	-	-	-
Number and Quantity														
Quantities	2	-	-	-	-	-	-	-	-	-	•	•	•	•

- Standard is not applicable for grade level

• Supports standard for grade level

• Can be adapted to support standard for grade level

Educational Standards Supported (continued)

Nutrition Education Competencies Supported

	Modules	K	1	2	3	4	5	6	7	8	9	10	11	12
1. Overarching Nutrition Competency: Essential Nutrition Concepts - All youth will know the relationships among nutrition, physiology, and health.														
1a. Know the six nutrient groups and the functions.	3, 5	•	•	•	•	•	•	•	•	•	•	•	•	•
1b. Know nutrition and health guidelines.	4, 5, 6, 8	•	•	•	•	•	•	•	•	•	•	•	•	•
1c. Know factors affecting energy balance.	2, 5, 6	•	•	•	•	•	•	•	•	•	•	•	•	•
1d. Describe how nutritional needs vary throughout the life cycle.	5	•	•	•	•	•	•	•	•	•	•	•	•	•
1e. Identify the physiological processes in digestion, absorption, and metabolism of nutrients.	3, 5	•	•	•	•	•	•	•	•	•	•	•	•	•
1f. Explain the influence of nutrition and physical activity on health.	2, 3, 5, 8	•	•	•	•	•	•	•	•	•	•	•	•	•
1g. Know principles of handling (growing, harvesting, transporting, processing, storing, and preparing) foods for optimal food quality and safety.	8	•	•	•	•	•	•	•	•	•	•	•	•	•
1h. Consider the interactions among nutrition science, ecosystems, agriculture, and social systems that affect health, including local, national, and global perspectives.	1, 2, 3	•	•	•	•	•	•	•	•	•	•	•	•	•
2. Overarching Nutrition Competency: Analyzing Nutrition Influences														
All youth will demonstrate the ability to analyze internal and external factors influencing food choices and health outcomes.	7	•	•	•	•	•	•	•	•	•	•	•	•	•

- Standard is not applicable for grade level

• Supports standard for grade level

• Can be adapted to support standard for grade level

Educational Standards Supported (continued)

Nutrition Education Competencies Supported (continued)

	Modules	K	1	2	3	4	5	6	7	8	9	10	11	12
3. Overarching Nutrition Competency: Accessing Valid Nutrition Information														
All youth will demonstrate the ability to access and analyze nutrition information, products, and services to analyze the accuracy and validity of nutrition claims.	2, 5, 6, 7	•	•	•	•	•	•	•	•	•	•	•	•	•
4. Overarching Nutrition Competency: Interpersonal Communication about Nutrition														
All youth will demonstrate the ability to use interpersonal communication skills to optimize food choices and health outcomes.	7						•							
5. Overarching Nutrition Competency: Decision Making for Nutrition Choices														
All youth will demonstrate the ability to use decision-making skills to optimize food choices and health outcomes.	2, 3, 5, 6, 8	•	•	•	•	•	•	•	•	•	•	•	•	•
6. Overarching Nutrition Competency: Goal Setting for Nutrition														
All youth will demonstrate the ability to use goal-setting skills to enhance nutrition and health.	2, 3, 5, 6, 8		•	•	•	•	•	•	•	•	•	•	•	•
7. Overarching Nutrition Competency: Practicing Nutrition-Enhancing Behaviors														
All youth will demonstrate the ability to practice nutrition-related behaviors that reduce risk and promote health.	2, 3, 5, 6, 8	•	•	•	•	•	•	•	•	•	•	•	•	•
8. Overarching Nutrition Competency: Nutrition Promotion														
All youth will demonstrate the ability to promote and support a sustainable, nutritious food supply and healthy lifestyles for families and communities.	1, 2, 3, 5, 8	•	•	•	•	•	•	•	•	•	•	•	•	•

-Standard is not applicable for grade level

- Supports standard for grade level
- Can be adapted to support standard for grade level

Module 1: Introduction to Nutrition, Agriculture, and Gardening

Background Information

The food that we eat supplies us with **nutrients** we need to grow and stay healthy. People in different countries eat different foods, but with the same goal of meeting their nutrient needs. When taking a closer look at agriculture in countries around the world, we find a wide variety of foods grown for consumption.

Agriculture is the science and art of using land to grow fruits and vegetables and raise livestock. The types of fruits and vegetables **cultivated** in each country depend on environmental factors like the **geography** and **climate** of the region. Many fruits and vegetables grow well in a **temperate** climate where the weather is mild and there are not extreme variations in temperature. In countries that have **arid** regions where there is not much rainfall, growing fruits and vegetables can be difficult without the artificial application of water through **irrigation**.

Agriculture can occur on large scales like large farms that require a lot of land. Agriculture can also take

place on a smaller scale using smaller plots of land like small farms, community gardens, school gardens, or home gardens.

In addition to the variation of fruits and vegetables between countries and **cultures**, there are also differences in the foods that are prepared. The uniqueness of different **cultural foods** is due to many influences. This includes things like the types of **native** plants and animals available for food, the religious practices of the people, and their exposure to other cultures. For example, during the **Age of Exploration** (15th to 17th centuries) many cultural foods around the world were influenced by explorers. These explorers, like the Spanish, Dutch, and English, brought fruits, vegetables, and cultural foods from their native countries on their voyages and introduced them to the countries they visited.

Concepts and Vocabulary

- **Age of Exploration:** a period of time from the early 15th century through the 17th century when European explorers traveled the world by sea in search of new trading partners, goods, and trade routes.
- **Arid:** a type of climate that is dry and does not receive much rainfall.
- **Agriculture:** science and art of using the land to raise crops and livestock.
- **Climate:** a description of the rainfall, temperature changes, and weather of a region.
- **Cultivate:** to prepare and use land for growing crops.
- **Culture:** the beliefs and practices of groups of people.
- **Cultural foods:** food that is prepared by a specific cultural group.
- **Geography:** the features of the land, including mountains, vegetation, and water sources.
- **Irrigation:** providing water to land that is used for agriculture.
- **Livestock:** animals raised in an agricultural setting that are used for food and other products like wool and leather.
- **Native:** something that is original to a specific place or region.
- **Nutrients:** substances our bodies need to grow and stay healthy.
- **Temperate:** a type of climate that does not have extreme variations in temperature.
- **Tropical:** a type of climate that is mostly warm temperatures with a lot of rainfall.

Life Skills

Accepting Differences, Communication, Contribution to Group Effort, Cooperation, Decision Making, Learning to Learn, Planning and Organizing, Sharing, Teamwork, Wise Use of Resources, Working and Giving

Subject Links

Language Arts, Nutrition

Educational Standards Supported

Discovering Healthy Choices curriculum supports Next Generation Science Standards, Common Core State Standards, and California Nutrition Education Competencies. For specific details on standards and grade levels, please see page 9.

Activity 1.1: Classroom Activity

Getting Ready

- Make copies of the *Nutrition and Agriculture Around the World* handouts (Appendix 1A); one country for each group.
- Organize the class into small groups of 3 to 4 youth.
- Provide each group with one sheet of flip chart paper and markers to answer opening questions.

Opening Questions/Prompts

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

- Explain what you know about where our food comes from.
- Explain what you know about how fruits and vegetables are grown.
- Explain what you know about the different foods grown and eaten by different cultures.

Facilitator Tip: Encourage youth from different cultural backgrounds to talk about what they know about their own culture.

Time Required

60 to 75 minutes

Suggested Groupings

Small groups of 3 to 4 youth

Materials Needed

(*Materials provided in curriculum)

- Flip chart paper
- Markers or writing utensils
- Craft supplies for art projects, which may include: poster paper, construction paper, scissors, tape, glue, etc.
- **Nutrition and Agriculture Around the World* handouts: United States, Australia, Chile, France, China, Kenya, Mexico, India, and Iraq (Appendix 1A)

1.1

Procedure (Experiencing)

1. Provide each group with a *Nutrition and Agriculture Around the World* handout. Each group should have a different country.
2. Allow the youth time to read about the agricultural and food-related practices of the people in the country they were assigned.
3. Ask each group to organize and prepare an art project about the things they learned about the country they were assigned.

Facilitator Tip: Youth may create any type of artwork: short story, poem, song, or a drawing, painting, diorama, collage, etc.

Facilitator Tip: To help the youth start this process, have them think about the following: common plants and animals, unique crops grown, climate, agricultural practices, cultural foods eaten, and other unique or interesting information.

Sharing, Processing, and Generalizing

1. Have the youth share their art projects. Ask them to describe how the different elements of their art projects convey information about agriculture and food in the part of the world they investigated.
2. Follow the lines of thinking developed through the youths' thoughts, observations, and questions as they share the differences and similarities of the agriculture and foods from the various countries. If necessary, ask more targeted questions/prompts.
 - Explain how you went about developing your art project to reflect the information you learned about the country you investigated.
 - Discuss the similarities and differences relative to agriculture in the countries represented in this activity.
 - Describe similarities and differences related to cultural foods discussed in this activity.

Concept and Term Discovery/Introduction

Make sure that youth understand the importance of **agriculture** and **cultivation** of crops so we get the **nutrients** we need. Youth should also understand that there are **cultural** differences around the world that influence the foods eaten from country to country. Additionally, make sure that key vocabulary terms are either discovered by the youth or introduced to them: **nutrients, agriculture, cultivate, livestock, geography, climate, irrigation, temperate, arid, tropical, native, culture, and cultural foods.**

Activity 1.2: Classroom Concept Application

Getting Ready

1. Make copies of the *Cultural Traditions Around the World* handout (Appendix 1B), enough for each youth.

Procedure (Experiencing)

1. Provide the youth with the *Cultural Traditions Around the World* handout.
2. Building upon the previous activity, ask the youth to further investigate the cultural traditions of the country they were assigned and the foods that are important to those traditions. As they research the country, have them think about the holidays and festivals that are important in the country and their associated foods. Explore those foods, and explain why they are important to these traditions. For example, Thanksgiving is a cultural tradition in the United States, and we typically eat certain foods on that holiday. Ask the youth to record their findings on the Cultural Traditions and Food handout.

Facilitator Tip: The youth may research this in the library or on the internet. Some suggested websites for further research include

- Food in Every Country website, <http://www.foodbycountry.com>.
- Whats4Eats: International Recipes and Cooking around the World website, <http://www.whats4eats.com>

Sharing, Processing, and Generalizing

1. Have the youth share their findings on the cultural traditions of each country. Follow the lines of thinking developed through general thoughts, observations, and questions raised by the youth as they share and compare their thoughts and ideas regarding the differences and similarities of the cultural traditions and foods associated with them in different countries.

Time Required

30 to 60 minutes

Facilitator Tip: This can be done during classroom time, or as a homework assignment.

Materials Needed

(*Materials provided in curriculum)

- **Cultural Traditions Around the World* (Appendix 1B)

Activity 1.3: Garden Concept Application

Getting Ready

- Make copies of the *Growing Vegetables from Around the World* handout (Appendix 1C), enough for each group.
- Organize the class into small groups of 3 to 4 youth.

Facilitator Tip: These can be the same groups that were formed in Module 1, Activity 1. By doing so, the youth may continue developing teamwork skills with the same group members.

- Provide each group with a sheet of flip chart paper and markers to answer opening questions.

Time Required

15 to 20 minutes

Suggested Groupings

Small groups of 3 to 4 youth

Materials Needed

- Flip chart paper
- Markers or writing utensils
- **Growing Vegetables from Around the World* (Appendix 1C)

Opening Questions/Prompts

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

- Explain what you know about the different vegetables grown around the world.
- Explain what you know about the different vegetables grown in California.

Procedure (Experiencing)

1. Provide the *Growing Vegetables from Around the World* handout to each group.
2. Ask the youth to identify and record the vegetables from the country they investigated, and then choose one vegetable they would like to grow.

Facilitator Tip: Some or all of the vegetables selected by the youth can be used to plant a cultural garden. The planting of these vegetables is included in Activity 2 of Module 2: Getting Physically Active.

Sharing, Processing, and Generalizing

1. Have the youth share which plant they decided to grow. Follow the lines of thinking developed through general thoughts, observations, and questions raised by the youth as they explain why they chose the plant they did.

Activity 1.4: Home Concept Application

Getting Ready

1. Make copies of the *Recipes Around the World* handout (Appendix 1D), one for each youth.

Time Required

10 to 20 minutes

Materials Needed

(*Materials provided in curriculum)

- **Recipes Around the World* (Appendix 1D)

Procedure (Experiencing)

1. Provide a copy of the *Recipes Around the World* handout to each youth.
2. Have the youth find a recipe from the country they investigated and prepare it with their family. Ask them to record their observations from their experience of making and eating the dish a on the *Recipes Around the World* handout.

Sharing, Processing, and Generalizing

1. Have the youth share their experience. Follow the lines of thinking developed through general thoughts, observations, and questions raised by the youth as they share and compare their thoughts and ideas regarding the observations they made while making and eating the cultural dish.

APPENDIX 1A: United States of America

The United States of America is located in North America. The United States has many different climate zones. The northwest region gets a lot of rain; the west is temperate, meaning there are not extreme temperature changes; and the southwest has deserts and is arid, meaning there is not much rain. The central United States has warm summers and moderately cold winters; the northeast gets a lot of snow in the winter and typically has moderate summer temperatures; and the southeast has a subtropical climate where it is humid and is not usually very cold in the winter.

The diverse climates allow for many different crops to be grown. Native Americans were mostly hunter-gatherers. Dietary staples include beans, squash, and corn. The Iroquois, a Native American tribe, called these three crops the “the three sisters” because they grow well together.

When Europeans settled in the United States they brought with them agricultural practices. Today, different regions of the United States are known for producing crops like corn, wheat, soybeans, tomatoes, potatoes, grapes, oranges, apples, lettuce, and beets. Livestock is also very important to U.S. agriculture. Main types of livestock raised in the United States



include cattle for dairy products and beef, chickens for eggs and poultry, and pigs for pork.

Agriculture in the United States used to rely on small, family-run farms, but today there are many large farms that grow and sell crops around the world. The use of new technology has made the United States one of the most efficient countries for producing crops and distributing them worldwide.

The state of California has a temperate climate and fertile land, perfect for growing a variety of crops. More than half of the nation’s fruit, nuts, and vegetables are grown in California. Some of the major crops grown in California include asparagus, artichokes, spinach, kale, lettuce, tomatoes, pumpkins, onions, grapes, kiwi, almonds, walnuts, garlic, peaches, nectarines, melons, and cherries.

Because the United States is so large, there are many different regional foods. Some examples include the Northeast: clam chowder (a stew of clams, potatoes and cream); the South: hushpuppies (fried cornmeal dough); the Southwest: chili con carne (a stew of beans, meat, chiles and spices); the West: sourdough bread (a sour-tasting white bread); Hawaii: poi (cooked taro root); Alaska: king crab.



APPENDIX 1A: Australia

Australia is a continent that is bordered by the Indian Ocean to the west and the Pacific Ocean to the east. The country has many different climate regions, but most of it is desert and grasslands where there is little rainfall. There are tropical areas in the north that get a lot of rain. In the southwest and southeast the climate is temperate, meaning that there are not extreme changes in temperature. These temperate areas are ideal for agriculture.

The native people of Australia are called Aborigines. They were hunter-gatherers and ate foods that were native to Australia, including plants like yams, onions, and quandong (a fruit similar to a peach), and meats like kangaroo, wombat, emu, duck, lizards, and grubs.

In the late 1700s, the British arrived in Australia and brought agricultural practices and crops from around the world. The agriculture in Australia was also later influenced by settlers from Asia and Europe.

The most commonly grown crops in Australia are wheat, oats, rice, beans, peas, soybeans, potatoes, carrots, tomatoes, beets, peas, corn, cucumbers, and olives. Fruits grown include grapes, apples, oranges, strawberries, guavas, blackberries, and currants. Of these foods found in Australia, some also are grown in California, including tomatoes, beets, peas, corns, cucumbers, olives, apples, and blackberries.



Sheep and cattle are important parts of Australian agriculture. Sheep are used mostly for wool, dairy products, and meat (lamb). Cattle are also used for dairy products and beef. Other livestock raised in Australia for meat are chickens, pigs, goats, and game animals like emu, wombat, and kangaroo. Australia also has a large fishing industry that relies on farmed fish. Fisheries in Australia raise seafood like tuna, abalone, prawns (similar to shrimp), and lobster.

Traditional dishes prepared by Australian people include: crab soup, grilled prawns, fried barramundi (a tropical fish), roast lamb with rosemary and mint, hamburgers topped with fried eggs and slices of beets, vegetables that have been stir-fried or boiled, and stewed fruit.



APPENDIX 1A: Chile

Chile is located on the west coast of southern South America. It is a long narrow country that borders the Pacific Ocean, Peru, Bolivia, and Argentina. Geographical features of Chile include the Andes mountains in the east, and the Atacama desert in the north, which is the driest place on earth. There are many different climates in Chile. For this reason, the crops that are grown vary from region to region.

In the high deserts of northern Chile, the climate is not suitable for growing many food crops, but there are flower growers and herders of llama and alpaca that are used mostly for their fur coats. In southern Chile, where there are forests, the climate and land do not support agriculture. However, there are many pasturelands that support livestock like cattle and pigs.

Central Chile is a long valley with a temperate climate, which means that the temperatures do not reach extremes. This climate makes the central valley ideal for agriculture and, in many ways, is similar to the Central Valley of California. The crops grown in Chile include wheat, corn, rice, onions, oats, peaches, garlic, beans, apples, grapes, and pears.

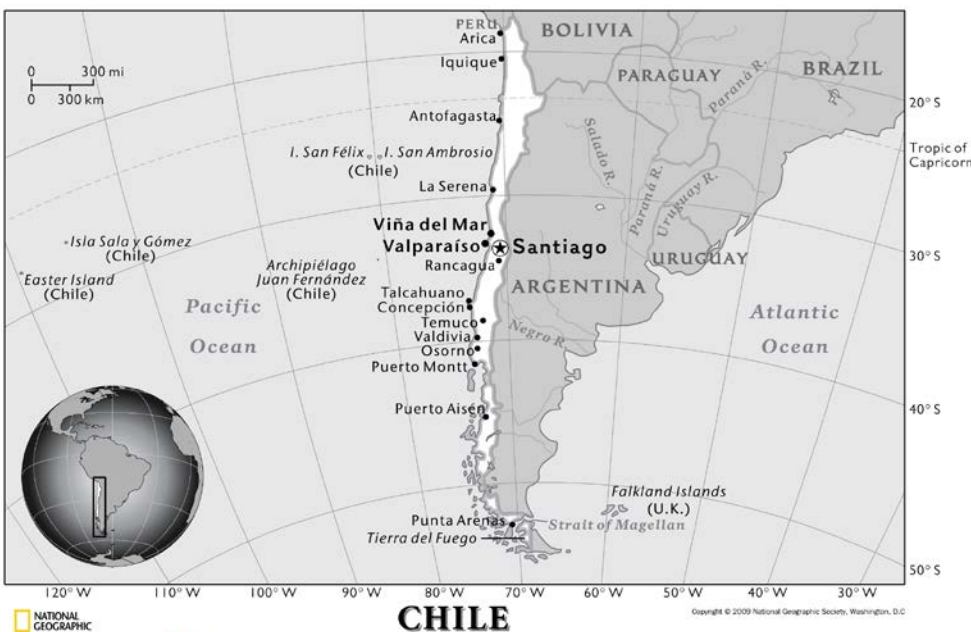
Of the foods grown in Chile, several are also grown in California, including onions, peaches, garlic, beans,



olives, apples, grapes, and pears.

Traditional foods grown by the native people of Chile were corn, potatoes, beans, tomatoes, squash (chayote, acorn squash, and summer squash), and chiles. When Spanish explorers arrived in South America in the 1500s, they introduced the people of Chile to olives, rice, wheat, cattle for beef, and pigs for pork.

The major staples of the Chilean diet are beef, fish, beans, corn, squash, and potatoes. Traditional dishes prepared in Chile include *porotos ranados* (beans, squash, and corn), *chupe de mariscos* (stew with mussels, scallops, abalone, and oysters), *cancho a la chilena* (stew with pork, vegetables, and chiles), and *empanadas* (pastry stuffed with seafood or beef, olives, raisins, and onions).

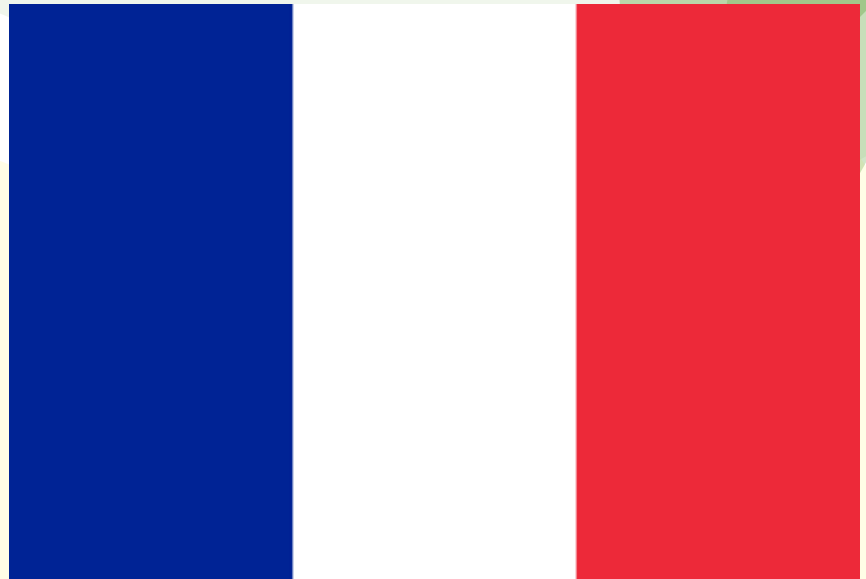


APPENDIX 1A: France

France is in Western Europe and neighbored by Spain, Germany, Switzerland, Luxembourg, Belgium, and Italy. Monaco, an independent city state, is located in the south of France. Geographically, France is made up of plains with mountainous areas in the southwest, east, and central regions. Most of France is temperate, which means that the weather is typically moderate and there are not long periods of extremely high or low temperatures. This climate makes many areas of France ideal for farming.

Foods that are grown in France include wheat, barley, white beans, lentils, split peas, potatoes, tomatoes, lettuce, cauliflower, green beans, leeks, spinach, onions, cucumbers, and radishes. Fruits include grapes and apples. Livestock raised for meat are cattle, chickens, pigs, lambs, ducks, and goats.

Across France, the types of soil and amounts of rainfall vary, so each region has its own unique agricultural products. The region called Normandy, located in the northwest, is known for apples and dairy cattle that produce cheese. Touraine, located in the west, is known for growing many different fruits and vegetables. Provence, a region in the southeast, produces Mediterranean crops like tomatoes, eggplant, garlic, and olives. France is well known for its food, and because of this, France is the largest exporter of foods in Europe.



Many of the foods grown in France are also grown in California, including tomatoes, beans, lettuce, cauliflower, spinach, radishes, olives, garlic, grapes, and apples.

Bread is a major staple in France. The baguette (a long thin loaf of white bread made from wheat with a crisp crust) originally came from Paris, the capital city of France, but has spread to other parts of the country and throughout the world. Another staple food in France is dairy, often eaten as cheese and yogurt. A soft cheese called Camembert is considered the “national cheese” of France. Brie is another well-known cheese from France.

Other foods commonly eaten in France include salads with oil and vinegar, crepes (small thin pancakes), cassoulet (a casserole with beans, sausage, and pork, duck, or goose), onion soup, and quiche (eggs and cream in a pie crust, often with other ingredients like bacon, onion, and cheese).

APPENDIX 1A: China

China is a very large country in eastern Asia and there are many different regions that have different climates. Most of the land is either mountains or desert, and only about one-tenth of the country can be farmed. In eastern China, the land is one of the best places for farming because of the access to water through river systems. Much of the farming in China is still done using traditional methods, such as using large animals like water buffalo and oxen to help with plowing and harvesting crops.

Rice is a main food eaten by Chinese people. Other traditional foods grown in China include cabbage, bean sprouts, soybeans, green onions (scallions), ginger, green beans, and daikon radishes. Common fruits are apples, pears, and citrus fruits. Tea is an important drink in China. Plants that have the leaves used for making tea are grown all over China on farms that are built on the sides of mountains.

Several foods that are found in China are also grown in California. These crops include cabbage, green onions, green beans, apples, pears, and citrus fruits like oranges and mandarins.

The most common livestock in China are pigs for pork, and chickens and ducks for poultry. Nomadic farmers also raise sheep, goats, and camels. These farmers constantly move across the countryside to feed their animals. Fishing is also a large aspect of



China's food production, accounting for one-third of all the fish eaten around the world.

China is a major exporter of vegetable crops to other countries around the world. The main agricultural products they sell are rice, tea, wheat, potatoes, peanuts, barley, cotton, pork, and fish. In addition to agricultural crops, flower gardens are very important in Chinese culture. Chinese people consider these gardens very important for the health of the mind, body, and spirit.

People in China eat tofu, a protein-rich food that is made from soy beans. Because China is so large, there are many different types of traditional foods in different regions. In the Canton province, simple stir-fries and rice are commonly eaten, but in the Szechuan (Se-chu-an) province, the dishes are

known for being spicy and having a lot of chilies, garlic, and leeks. An important idea in Chinese cooking is balance. It is important that the flavors, textures, and colors in every meal are well balanced.



APPENDIX 1A: Kenya

Kenya is located in eastern Africa and borders Sudan, Ethiopia, Somalia, Tanzania, and Uganda. The northern part of Kenya is arid, meaning the climate does not get much rainfall. In the west there are mountains and fertile land that are good for agriculture. The southeastern border of Kenya has coastlines on the Indian Ocean that allow for access to fishing. Because of the climate, only one-tenth of the land in Kenya is used for agriculture.

The native people of Kenya are mostly nomadic, meaning that they move from one area to another to gather food and herd animals. Cattle are used mainly for dairy; they do not typically use cattle for meat. Other native people rely on a diet of gathered foods including grains like millet and sorghum, bananas, and various greens.

When explorers from Europe arrived in the 1400s, they introduced agricultural practices and brought with them many of the crops that are now grown in Kenya. Because most of the land in Kenya is not ideal for growing crops, a common agricultural practice, called field rotation, is used. This is where farmers use only some fields each year to grow crops, and then rotate the crops between fields. This gives each field a chance to rest and regain nutrients that will allow the

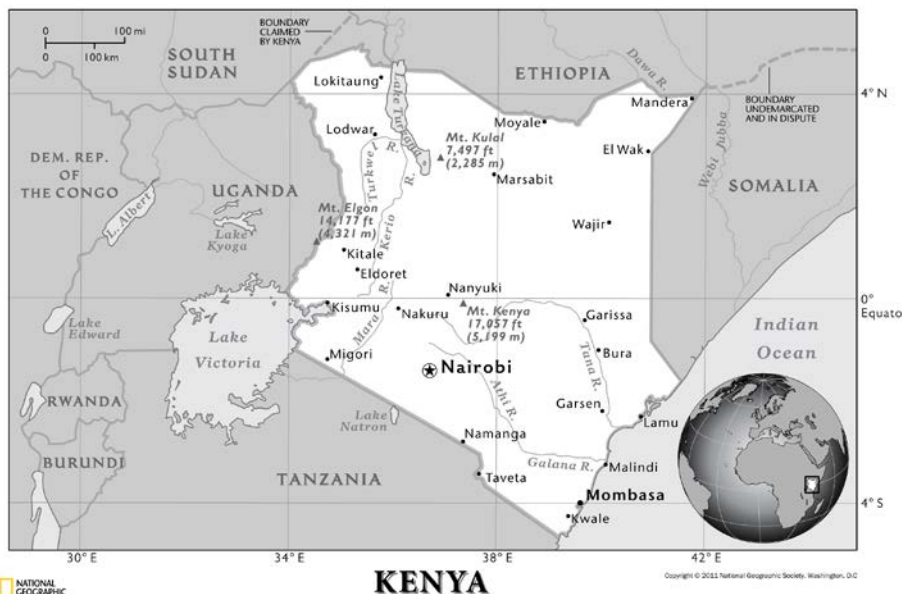


next rotation of crops to grow better.

Vegetable crops grown in Kenya are potatoes, peanuts, cowpeas, beans, lentils, green bananas, dark leafy greens (kale, amaranth), cassava, yams, sweet potatoes, tomatoes, onions, okra, and eggplant. Fruits include bananas, coconuts, pineapples, mangoes, and strawberries. Kenya is also known for growing tea leaves and coffee beans.

Of the foods grown in Kenya, there are several that are also grown in California, including potatoes, tomatoes, onions, eggplant, and strawberries.

Starchy foods are an important part of the Kenyan diet. Seafood is typically dried and salted to preserve it. The most common staple food in Kenya is ugali (a very thick cornmeal or millet porridge). Other common foods include *sukuma wiki* (a stew of leftover meat and vegetables), *irio* (a dish of mashed beans, corn, and potato or cassava), peanut soup, fish cooked with coconut milk, meat that has been roasted or grilled, and green bananas boiled in banana leaves.



APPENDIX 1A: Mexico

Mexico is a country in North America located south of the United States. It is the eighth largest country in the world, but only a small part of the country is used for farming. The climate in most of Mexico is warm year-round, but there are some places in central Mexico where it snows. In northern Mexico the land is forests and grasslands, and in central Mexico there are mountain ranges. In the southern parts of the country the climate is tropical and there are jungles and a lot of rainfall. There are two very large deserts in Mexico where many types of cactus are found.

The native people of Mexico cultivated many different vegetables, but the major staples of their diet were corn, chilies, beans, and squash (for example, chayote, acorn squash, and summer squash). Corn grown in Mexico is primarily used for making tortillas. Cactus is also a food commonly eaten in Mexico. The stem parts of the cactus are called *nopales* and the cactus fruits are called prickly pears or *tuna*.

In the early 1500's, Spanish explorers like Hernán Cortés arrived in Mexico. The explorers brought with them many foods from Spain, including rice, wheat, olives, onion, garlic, cinnamon, and livestock, like cattle, pigs, goats, and sheep.



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In addition to the native staples of corn, beans, and squash, other common vegetable crops grown in Mexico include potatoes, tomatoes, chocolate (made from cacao), avocados, chiles, jicama, onion, radishes, lettuce, and garlic. Fruits grown in Mexico include oranges, apples, strawberries, pomegranates, bananas, pineapple, papaya, coconuts, and mango. Today, Mexico exports many fruits and vegetables to countries around the world.

Many of the crops grown in Mexico are also grown in California, including potatoes, tomatoes, avocados, chiles, onion, radishes, lettuce, garlic, oranges, pomegranates, and apples.

Mexican cooking is known for using many herbs and spices like chilies, chipotle, oregano, cilantro, epazote (an herb), cinnamon, and cocoa. Some examples of traditional foods include *tamales* (a dough made from corn that is filled with meat and cooked in corn husks or banana leaves); *pozole* (a stew made with meat, corn, chiles, and beans); *chorizo* (pork sausage); *sopa seca* (a casserole made with stale rice or tortillas); and *mole* (a sauce made with chilies, garlic, spices and sometimes chocolate).

APPENDIX 1A: India

India is in South Asia and is bordered by Pakistan, China, Nepal, and Bangladesh. It has the second largest population with 1.2 billion people, and is the seventh largest country in the world.

This very large country has a variety of different regions and climates. In the northwest the Thar desert is an arid region; this type of climate is dry and has little rainfall. In the north are the world's tallest mountains, the Himalayas where there is snow during the winter. The rest of the country has a mostly tropical climate, where it is warm most of the year and there is a lot of rainfall in the monsoon season from June to September. The Ganges Plain in central India is a fertile region where crops grow very well.

The major agricultural crops grown in India are rice, wheat, corn, potatoes, eggplant, cauliflower, kohlrabi, okra, tomatoes, green beans, carrots, spinach, cucumbers, radishes, chickpeas (garbanzo beans), lentils, coconut, cotton, and tea. Fruits grown in India include bananas, mangoes, coconut, oranges, lemons, limes, pineapple, tamarind, jackfruit, and guavas.

Many of the crops grown in India are also grown in California, including potatoes, tomatoes, okra,



radishes, spinach, cucumbers, and green beans.

Dishes from India are known for using many herbs and spices like ginger, saffron, mint, tamarind, coriander, cumin, turmeric, cardamom, nutmeg, cloves, and red pepper.

One of the oldest civilizations lived in the Indus Valley in India, dating back to at least 3,000 BCE. Over several thousands of years, foods in the region have been influenced by many different types of people including Arabs, Turkish, Dutch, Portuguese, and British. Many people in India are vegetarians, which are people who do not eat meat. Some examples of traditional foods include *curry*

(a spicy stew with chicken, seafood, or vegetables), *chutney* (pickled fruits and vegetables used as a condiment), *pakora* (deep-fried vegetables), *cachumber* (salad with cucumbers, onions, and tomatoes), *dal* (a puree of lentils), *paneer* (a soft cheese), and *naan* (bread cooked in a tandoor, a special type of oven).



APPENDIX 1A: Iraq

Iraq is in the Middle East and is bordered by Syria, Turkey, Iran, Kuwait, Saudi Arabia, and Jordan. It has mostly plains, but there is a central valley where there are two major rivers, the Tigris and Euphrates.

The climate of Iraq is mostly arid, where there is mostly warm weather and little rainfall. In this type of climate it is difficult to grow crops without an intervention like irrigation.

The major agricultural crops grown in Iraq are wheat, tomatoes, barley, rice, dates, and cotton, and the livestock that is raised include chickens, sheep, goats, and cattle. Some of the agricultural crops grown in Iraq are also grown in California, including tomatoes, rice, and cotton.

Iraq is where the civilizations of Mesopotamia lived thousands of years ago. The people from Mesopotamia relied on grains like wheat and barley. These grains are still an important part of the Iraqi diet. Many other cultures influenced what Iraqi people eat today, including foods that originated in Turkey and Persia.



In Iraq, dairy is typically consumed in the form of yogurt or feta cheese. Commonly eaten fruits and vegetables include chickpeas (garbanzo beans), fava beans, lentils, tomatoes, potatoes, onions, eggplant, green peppers, olives, celery, green onions, parsley, pickles, dates, figs, grapes, lemons, limes, apricots, and raisins. Herbs and spices used in Iraqi cooking are onions, garlic, chives, lemon juice, parsley, tarragon, marjoram, mint, dill, saffron, cinnamon, nutmeg, cloves, cardamom, turmeric, and coriander.

Some examples of traditional foods in Iraq are *harrisa* (a meat stew with wheat), *kashki* (a porridge of meat, dried limes, cumin, and turmeric or tomato juice), *tharid* (a casserole with layers of meat and flatbread), and *uruq* (meat cut small and mixed with bread dough, green onions, and celery leaves, and baked like bread).



APPENDIX 1B: Cultural Traditions Around the World

Find out about cultural traditions, like holidays and festivals, in the country you were assigned to investigate, and then answer the questions below. Here are some internet resources where you can find information.

- Food in Every Country website, <http://www.foodbycountry.com>.
- Whats4Eats: International Recipes and Cooking around the World website, <http://www.whats4eats.com>.

What is the name of the country you are investigating?

Describe cultural traditions in this country and the important foods that are associated with these traditions.

APPENDIX 1C: Growing Vegetables from Around the World

	Cool season crop	Warm season crop
Australia	beets, carrots, peas, potatoes, strawberries, parsley	black beans, corn, cucumbers, soybeans, tomatoes, onions
Chile	potatoes, parsley, cilantro	black beans, corn, tomatoes, winter squash, summer squash
China	broccoli, cabbage, leeks, daikon radishes	eggplant, garlic, green beans, soybeans, taro root
France	fennel, mint, parsley, basil, kohlrabi, lettuce, onions, potatoes, radishes, spinach, swiss chard	eggplant, tomatoes
India	carrots, kohlrabi, potatoes, radishes, mint, cilantro	black-eyed peas (cowpeas), chickpeas (garbanzo beans), cucumbers, eggplant, okra
Iraq	green onions, potatoes, parsley	chickpeas (garbanzo beans), eggplant, onions, tomatoes
Kenya	kale, strawberries, potatoes, amaranth	black-eyed peas (cowpeas), eggplant, okra, onions, sweet potatoes, tomatoes
Mexico	strawberries, parsley, lettuce, potatoes, cilantro	corn, chiles (peppers), onions, tomatoes, summer squash, winter squash
USA	strawberries, mint, parsley, basil, beets, broccoli, cabbage, carrots, kohlrabi, leeks, lettuce, okra, potatoes, radishes, spinach, swiss chard, cilantro, mint, parsley, kale	black beans, black-eyed peas (cowpeas), corn, cucumbers, eggplant, garlic, onions, chiles (pepper), soybeans, sweet potatoes, taro root, tomatoes, winter squash

APPENDIX 1D: Recipes Around the World

Find a recipe from the country you were assigned to investigate, then answer the questions below. Here are some internet resources where you can find recipes from other countries.

- Food in Every Country website, <http://www.foodbycountry.com>
- Whats4Eats: International Recipes and Cooking around the World website, <http://www.whats4eats.com>
- All Recipes World Cuisine Recipes website, <http://allrecipes.com/recipes/86/world-cuisine>
- Easy Kids Recipes website, <http://www.easy-kids-recipes.com/international-recipes.html>
- Epicurious Around the World in 80 Dishes website, <http://video.epicurious.com/series/around-the-world-in-80-dishes>

What is the name of the country you are investigating?

What is the name of the recipe?

Explain what you observed about this food when you prepared and ate it.

Module 2: Getting Physically Active

Background Information

One reason humans need food is for energy. This energy serves a variety of functions, such as fueling muscle movement and brain function, meeting basic energy requirements for other organs and tissues, and helping to maintain our body temperature.

Oxygen is used by our bodies to break down food for energy. Without oxygen, **aerobic organisms**—plants and animals that require oxygen—could not survive. When oxygen is used to break down food for energy, **carbon dioxide** is released as a waste product. For this to happen, oxygen must be transported to different parts of our bodies where it can be used to release energy from food. Carbon dioxide that is released as part of this process must be transported from different parts of our bodies so it can be disposed of.

The **cardiovascular system** consists of the **lungs**, **heart**, and a network of **veins** and **arteries** that transport blood. The blood carries oxygen and carbon dioxide to and from our tissues and organs, and it also carries nutrients to different parts of the body. The heart can be thought of as a pump that consists of two halves: the right half and the left half. The right half of the heart includes the **right atrium** and **right ventricle**; the left half of the heart is made up of the **left atrium** and **left ventricle**. The lungs are where **gas** exchange with the atmosphere occurs. Oxygen is brought into the body through **inhalation**; carbon dioxide is released into the atmosphere through **exhalation**.

The pathway that blood travels through the body is a closed circuit (i.e., everything is connected). After food has been broken down and used for energy in different tissues of the body, like muscles, carbon dioxide is carried in the blood to the heart via the veins, where it enters the right atrium of the heart. The right atrium then pumps the blood to the right ventricle. After entering the right ventricle, the blood that is high in carbon dioxide is pumped to the lungs, where gas exchange with the atmosphere takes place: carbon dioxide is exhaled, and oxygen enters the blood through inhalation. The oxygen-rich blood moves from the lungs to the left atrium of the heart where it then travels to the left ventricle. From the left ventricle, the oxygen-rich blood is pumped to the rest of the body through arteries, where the oxygen will be used to help break down food for energy.

When we are physically active, our bodies need more fuel to do the physical work. The demands for oxygen depend on the levels of intensity of physical activity. The higher the intensity, the more demand there is for oxygen. As a result, **heart rates** and **breathing rates** will increase to meet this demand.

Concepts and Vocabulary

- **Aerobic organism:** an organism that requires oxygen to create energy.
- **Arteries:** vessels that carry oxygen-rich blood from the heart to the rest of the body.
- **Blood:** the fluid that carries oxygen, carbon dioxide, and nutrients and is pumped by the heart through vessels and moves throughout the body.
- **Breathing rate:** the frequency of breathing, expressed as the number of breaths per minute.
- **Carbon dioxide:** a colorless, odorless gas that is expelled by aerobic organisms as a waste product.
- **Exhalation:** the act of breathing out air from the lungs through the nose or mouth.
- **Heart rate:** how frequently the heart beats, expressed as the number of heart beats per minute.
- **Heart:** an organ that pumps blood throughout the body.
- **Inhalation:** the act of breathing in air through the nose or mouth into the lungs.
- **Intensity (of physical activity):** the degree of effort required to perform an activity.
- **Left atrium:** the upper left chamber of the heart that receives oxygen-rich, carbon dioxide-poor blood from the lungs.
- **Left ventricle:** the lower left chamber of the heart that receives oxygen-rich, carbon dioxide-poor blood from the left atrium.
- **Lungs:** the organ that transfers oxygen and removes carbon dioxide from the blood, allowing animals to breathe and function properly.
- **Oxygen:** a colorless, odorless gas that is required for aerobic organisms to live.
- **Pulse:** the regular expansion and contraction of blood vessels caused by the heart pumping blood throughout the body.
- **Right atrium:** the upper right chamber of the heart that receives oxygen-poor, carbon dioxide-rich blood from the rest of the body.
- **Right ventricle:** the lower right chamber of the heart that receives oxygen-poor, carbon dioxide-rich blood from the right atrium.
- **Veins:** vessels in the body that are rich in carbon dioxide and take this gas from parts of the body and back to the heart.

Life Skills

Learning to learn, problem solving, critical thinking, keeping records, communication, cooperation, social skills, sharing, contributions to group effort, teamwork

Subject Links

Science, English-Language Arts

Educational Standards Supported

Discovering Healthy Choices curriculum supports Next Generation Science Standards, Common Core State Standards, and California Nutrition Education Competencies. For specific details on standards and grade levels, please see page 9.

Activity 2.1: Classroom Activity

Getting Ready

1. Make 1 copy of the *Container Labels* (Appendix 2A), cut them into separate labels, and secure one to each container.
2. Make copies of the *Human Body Outline* (Appendix 2C), two for each group of four youth, one for each group of three youth.
3. Make 5 copies of *Blood Flow Cards Set 1* (Appendix 2D).
4. Make 1 copy of *Blood Flow Cards Set 2* (Appendix 2E).
5. Cut out each of the Blood Flow Cards, Sets 1 and 2. Fold each of the cards into quarters and place them in the container with the matching label. For example, a card that states, “Blood high in carbon dioxide and low in oxygen flows from the BRAIN to the RIGHT ATRIUM” would be placed in the container labeled “Brain”.
6. Organize the 15 containers in the classroom or multi-purpose room according to the configuration shown in *Classroom Orientation* (Appendix 2B).

Facilitator Tip: The activity works best if there is some distance (e.g., 15–20 feet) between containers, thus a large area is recommended (e.g., multi-purpose room, school gymnasium, or playground).

7. Organize the class into small groups of 3 to 4 youth.

Facilitator Tip: these can be the same groups that were formed in Module 1, Activity 1. By doing so, the youth may continue developing teamwork skills with the same group members.

8. Provide each group with a sheet of flip chart paper and markers to answer opening questions.

Time Required

60 to 75 minutes

Suggested Groupings

Small groups of 3 to 4 youth

Materials Needed for Each Group

(*Materials provided in curriculum)

- Flip chart paper
- Markers or writing utensils
- One red marker and one blue marker for each pair
- 15 containers (paper lunch bags, shoe boxes, etc.)
- **Container Labels* (Appendix 2A)
- **Classroom Orientation* (Appendix 2B)
- **Human Body Outline* (Appendix 2C)
- **Blood Flow Cards Set 1* (Appendix 2D)
- **Blood Flow Cards Set 2* (Appendix 2E)

Opening Questions/Prompts

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

- Explain what you know about the human heart.
- Explain what you know about human lungs.

Procedure (Experiencing)

1. Have each group of 4 youth split into 2 pairs. If there are groups of 3, they will remain a group of 3 youth.
2. Provide a copy of the *Human Body Outline* to each pair or group of 3 youth.
3. Explain that the layout of the room is a human body, and each container represents a different body part. Walk around to each station, reading aloud the names of each container so that the youth become familiar with the layout of the room.
4. Distribute the pairs and groups of 3 equally among the fifteen stations.
5. Ask the youth to imagine they are blood cells (very small parts of the body that are found in the blood) moving through blood vessels to different parts of the body.

Procedure (Experiencing) (continued)

6. Instruct the youth to draw a card from the container at their station and read it. Ask them to pay close attention to which station they are starting from, where they are directed to go next, and whether the blood is high in oxygen or high in carbon dioxide.
7. Ask the youth to refold the card and place it back in the container.
8. Instruct the youth to move to the next station as directed by the card.

Facilitator Tip: There is likely to be a large group that forms at the left ventricle. Ask the youth to be patient and wait their turn to move.
9. When the youth have arrived at their destination, ask them to draw a line on their diagrams representing where they started and where they went. Explain that they should use a red marker for blood that is high in oxygen and low in carbon dioxide and a blue marker for blood that is high in carbon dioxide and low in oxygen.
10. Allow enough time for the pairs and groups of 3 to discuss what happened and to draw the lines on the *Human Body Diagram*.
11. Once they have finished drawing the lines on their diagrams, ask the youth to select a card from the container where they just arrived. Ask them to read the card before placing it back in the container, go to the next station as directed by the card, and then draw the corresponding line on their diagrams: red for blood high in oxygen and low in carbon dioxide and blue for blood that is high in carbon dioxide and low in oxygen.
12. Allow the youth to complete several rotations (at least 10) so they are able to get to several parts of the body.
13. Have the pairs get back into their original groups of 4. The groups of 3 will remain the same. Ask the groups to discuss what they discovered about blood flow as they traveled around the human body.

Sharing, Processing, and Generalizing

1. Have the youth share their diagrams of the human body.
2. Follow the youths' lines of thinking through their general thoughts, observations, and questions. If necessary, ask more targeted questions/prompts:
 - Explain how you went about completing the diagram and how you arrived at your conclusions.
 - As a blood cell, explain what you observed as you moved through the body.
 - Explain what you noticed about carbon dioxide and oxygen in different parts of the body.
 - Explain what you noticed about the role of the heart and lungs.

Concept and Term Discovery/Introduction

Youth should understand the basic anatomy of the heart (**ventricles** and **atria**); the gases that are exchanged (**oxygen** is taken in and **carbon dioxide** is expelled); and how blood that is high in oxygen is pumped from the heart through **arteries** to different tissues of the body, and blood that is high in carbon dioxide flows through **veins** to the heart to be pumped to the **lungs**, where it becomes high in oxygen again. Youth should also understand that humans are **aerobic organisms**, needing oxygen for survival. Additionally, make sure that key vocabulary terms are either discovered by the youth or introduced to them: **lungs, heart, left atrium, left ventricle, right atrium, right ventricle, arteries, veins, oxygen, carbon dioxide, and aerobic organism**.

Activity 2.2: Classroom Concept Application

Getting Ready

- This activity uses the same 15 containers with labels (Appendix 2A), Blood Flow Cards Sets 1 and 2 (Appendix 2D and 2E), folded and placed in the containers, and classroom orientation (Appendix 2A) as Activity 2.1.
- Organize the 15 containers in the classroom or multipurpose room according to the configuration shown in Appendix 2B.
- **Facilitator Tip:** The activity works best if there is some distance (e.g., 15–20 feet) between containers, thus a large area is recommended (e.g., multipurpose room, school gymnasium, or playground).

Procedure (Experiencing)

Facilitator Tip: This procedure is important to introduce youth to the concept of finding their pulse and observing the differences in heart rate and breathing rate between rest and being active. This will help prepare them for Activity 2.3: Garden Concept Application.

1. Provide each youth with a copy of the *Introduction to Heart Rate and Breathing Rate* handout. Ask the youth to sit quietly for a few minutes so that they can obtain their resting heart rate and resting breathing rate.
2. Ask the youth to find their pulses. Note: youth may need help with this. Pulses can be found by using the tips of the index and middle fingers of the left hand and pressing gently on the left side of the throat, just below the jaw; or by placing the tips of the index and middle fingers of their right hand on the inside of their left wrist below their left thumb (Diagram in Appendix 2K).
3. Ask the youth to count the number of pulses they feel for 6 seconds. Using a clock with a second hand or a stopwatch, tell the youth when to start and stop. To find the number of beats per minute, have them then multiply that number by 10. This number is their heart rate. Have them record their heart rate in the chart for resting heart rate.
4. Ask the youth to count the number of times they inhale in 6 seconds. Using a clock with a second hand or a stopwatch, tell the youth when to start and stop. Have them multiply that number by 10 to find breaths per minute (respiration rate). This is their respiration (breathing) rate. Have them record their breathing rate on the chart for resting breathing rate.
5. Divide the youth evenly among all 15 stations. Ask them to draw a card, read where to go next, replace the card, but this time they will move as quickly as they can to the next station. Have them do this for at least three rotations.
6. Ask the youth to find their pulses and count them for 6 seconds. Using a clock with a second hand or a stopwatch, tell the youth when to start and stop. Note: youth may need help with this. Using a clock with a second hand or a stopwatch, tell the youth when to start and stop. To find the number of beats per minute, have them then multiply that number by 10. This number is their heart rate. Ask them to record this on the chart as active heart rate.
7. Ask the youth to count the number of times they inhale in 6 seconds. Using a clock with a second hand or a stopwatch, tell the youth when to start and stop. Have them multiply that number by 10 for breaths per minute (respiration rate). This number is their respiration (breathing) rate. Ask them to record this on the chart as active breathing rate.
8. Ask the youth to make a bar graph of the heart rates and breathing rates using the graph on the handout.

Facilitator Tip: If the youth are unfamiliar with a bar graph, give them an introduction to allow them to complete the activity.

Time Required

10 to 15 minutes

Suggested Groupings

Individuals

Materials Needed for Each Group

(*Materials provided in curriculum)

- 15 containers (paper lunch bags, shoe boxes, etc.)
- **Container Labels* (Appendix 2A)
- **Classroom Orientation diagram* (Appendix 2B)
- **Blood Flow Cards Set 1* (Appendix 2D)
- **Blood Flow Cards Set 2* (Appendix 2E)
- **Introduction to Heart Rate and Breathing Rate* (Appendix 2F)
- Clock with a second hand or a stopwatch

Sharing, Processing, and Generalizing

1. Discuss the findings as a class. Follow the youths' lines of thinking through general thoughts, observations, and questions as they discuss their findings. If necessary, ask more targeted questions/prompts:
 - Explain what you observed about the differences between your heart and breathing rates between when you were quiet and resting compared to after you were active and ran between stations.

Concept and Term Discovery/Introduction

Youth should understand that **heart rate** and **breathing rate** will be different when we are quiet and resting and when we are physically active. Additionally, make sure that the key vocabulary terms have been discovered by the youth or introduced: **heart rate**, **breathing (respiration) rate**, **pulse**, **inhalation**, and **exhalation**.

Activity 2.3 Garden Concept Application

Getting Ready

- Make copies of the *Heart and Breathing Rate Table* (Appendix 2G), one for each youth.
- Make copies of the *Heart and Breathing Rate Graph* (Appendix 2H), one for each youth.
- Divide the garden space into small plots, one for each group.
- Set up two stations in the garden:

Station 1: Planning and recording: select a place where groups can organize and plan what they will plant in their garden plot.

Station 2: Soil preparation and planting: arrange soil, tools, plants, seeds, so the youth can access them easily.

Facilitator Tip: If there is limited space in the garden, divide the groups equally between the two stations and have them rotate between them. This will allow for the groups at the soil preparation and planting station to spread out among the plots and have more room to work.

- Organize the class into small groups of 3 to 4 youth.

Facilitator Tip: These can be the same groups that were formed in Module 1, Activity 1. By doing so, the youth may continue developing teamwork skills with the same group members.

- Provide each group with one sheet of flip chart paper and markers to answer opening questions.

Time Required

60 to 75 minutes

Suggested Groupings

Small groups of 3 to 4 youth

Materials Needed

(*Materials provided in curriculum)

- Flip chart paper
- Markers or writing utensils
- **Heart and Respiration Rate Table* (Appendix 2G)
- **Heart and Respiration Rate Graph* (Appendix 2H)
- Blank paper
- Plant stakes
- Permanent markers
- Soil
- Gardening tools
- Seeds and Plants:
 - See the list of recommended plants can be found in Appendix 2L
 - Include vegetables that were chosen by each group from Module 1: Introduction to Nutrition, Agriculture, and Gardening Activity 1.3.
 - Choose vegetables to represent every MyPlate vegetable category (Appendix 2L).
 - Select habitat plants (plants that serve as habitats for beneficial insects) that youth can choose from in preparation for Module 7: Consumerism Garden Activity (Appendix 2M).

Opening Questions/Prompts

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

- Explain what you know about how blood flows through the body and what major organs are involved.
- Explain what you know about heart rate and breathing rate.
- Explain what you know about why exercise is important.
- Explain what you know about gardening.
- Explain how gardening could be an important form of exercise for some people.

Procedure (Experiencing)

1. Provide each youth with a copy of the *Heart and Breathing Rates Chart*.
2. At the planning station, provide each group of 3 to 4 youth with some blank paper to plan their assigned garden plot and plant stakes and permanent markers to make plant markers.
3. Explain to the youth what vegetable plants and seeds are available.
 - a. Ask the youth to select the vegetables they want to plant, and then make a plan for their garden plot.
 - b. Have them write down the vegetables they will plant, including why they chose them, where they will plant them, and what tools and methods they will use to plant them.
 - c. Ask them to prepare a plant marker for each vegetable they will plant, using a plant stake and permanent marker.
 - d. Additionally, have the youth choose a habitat plant for their plot. Ask them to inspect the choices of plants and select one they think will best attract beneficial insects. Ask them to record why they thought it would be a good habitat plant and what types of insects they think the plant might attract.

Facilitator Tip: This step is important because the habitat plants will be needed for Module 7: Consumerism Activity 7.3.

4. Allow the youth 20 minutes to complete the planning.
5. Immediately following completion of the garden planning, ask the youth to find their pulses and count them for 6 seconds. Note: youth may need help with this. Tell the youth when to start and stop. To find the number of beats per minute, have them then multiply that number by 10. This number is their heart rate. Ask the youth to count the number of times they inhale in 6 seconds. Have them multiply that number by 10 for breaths per minute to determine breathing rate.
6. Have the youth record their heart and breathing rates on the chart, along with a description of the activities they performed.
7. Ask the groups of youth to go to the soil preparation and planting station. Introduce them to the tools that are available for preparing the soil for planting. Show each group where their assigned garden plot is, and explain that it will be their own garden plot throughout the activities.
8. Ask them to prepare the soil in their assigned garden plot by turning it over, making furrows, removing weeds, etc. Then ask the youth to plant the vegetables they previously planned to plant. Allow them to do these activities for 20 minutes.

Facilitator Tip: Save the seed packets and plant labels for use in Activity 6.3: (Food Labels).

Procedure (Experiencing) (continued)

Facilitator Tip: If dividing the class into two rotating groups, the group that starts at the soil preparation and planting station can choose the plants they wish to select during the planting. When they rotate to the planning and recording station, they will record how they prepared and organized the garden, what vegetables they planted and why, what habitat plant they planted and why, and what tools and methods they used to plant them.

9. Immediately following completion of the soil preparation and planting, ask the youth to find their pulses and count them for 6 seconds. Note: youth may need help with this. Tell the youth when to start and stop. To find the number of beats per minute, have them then multiply that number by 10. This number is their heart rate. Ask the youth to count the number of times they inhale in 6 seconds. Have them multiply that number by 10 to determine breathing rate.
10. Have the youth record their heart and breathing rates on the chart along with a description of the activities they performed.
11. Provide each youth with a copy of the Heart and Breathing Rates Graph (Appendix 2H).
12. Ask the youth to graph the results on the Heart and Respiration Rate graph.
13. Have the groups discuss what they observed about their heart rates and breathing rates at each station.

Sharing, Processing, and Generalizing

1. Have the groups share their graphs and findings for the heart and breathing rates. Follow the youths' lines of thinking through their general thoughts, observations, and questions. If necessary, ask targeted questions/prompts:
 - Explain how you went about planning your garden plot and how you made your decisions about what to plant and how to do so.
 - Explain what you observed about your heart and breathing rates.
 - Explain why you think your heart rate and breathing rate differed between activities.
 - Explain what you observed about the different heart rates among your group members for each of the activities.

Concept and Term Discovery/Introduction

Youth should understand that **heart rate** and **breathing rate** will be different at resting and at different **intensities** of activity. Additionally, make sure that the key vocabulary terms have been discovered by the youth or introduced: **heart rate**, **breathing (respiration) rate**, **pulse**, **intensity**, **inhalation**, and **exhalation**.

Activity 2.4: Goal Setting Application

Getting Ready

1. Make copies of the *Goal Setting* handout (Appendix 2I), one for each youth.

Time Required

5 to 10 minutes

Materials Needed

- (*Materials provided in curriculum)
- **Goal Setting* (Appendix 2I)

Procedure (Experiencing)

1. Provide a copy of the *Goal Setting* handout to each youth.
2. Explain that it is recommended that we participate in 60 minutes of physical activity every day to maintain a healthy body.
3. Ask the youth to take home the *Goal Setting sheet* and complete it with their families. They will answer the following questions:
 - What are some things you can do to meet this recommendation?
 - What are some things your family can do to meet this recommendation?
4. When the youth return with the completed sheet, ask the youth to share the goals they set for themselves and for their families to meet the recommendation.

Activity 2.5: Home Concept Application

Getting Ready

1. Make copies of the *Getting Physically Active with My Family* handout (Appendix 2J), one for each youth.

Time Required

5 to 10 minutes

Materials Needed

- (*Materials provided in curriculum)
- **Getting Physically Active with My Family* (Appendix 2J)

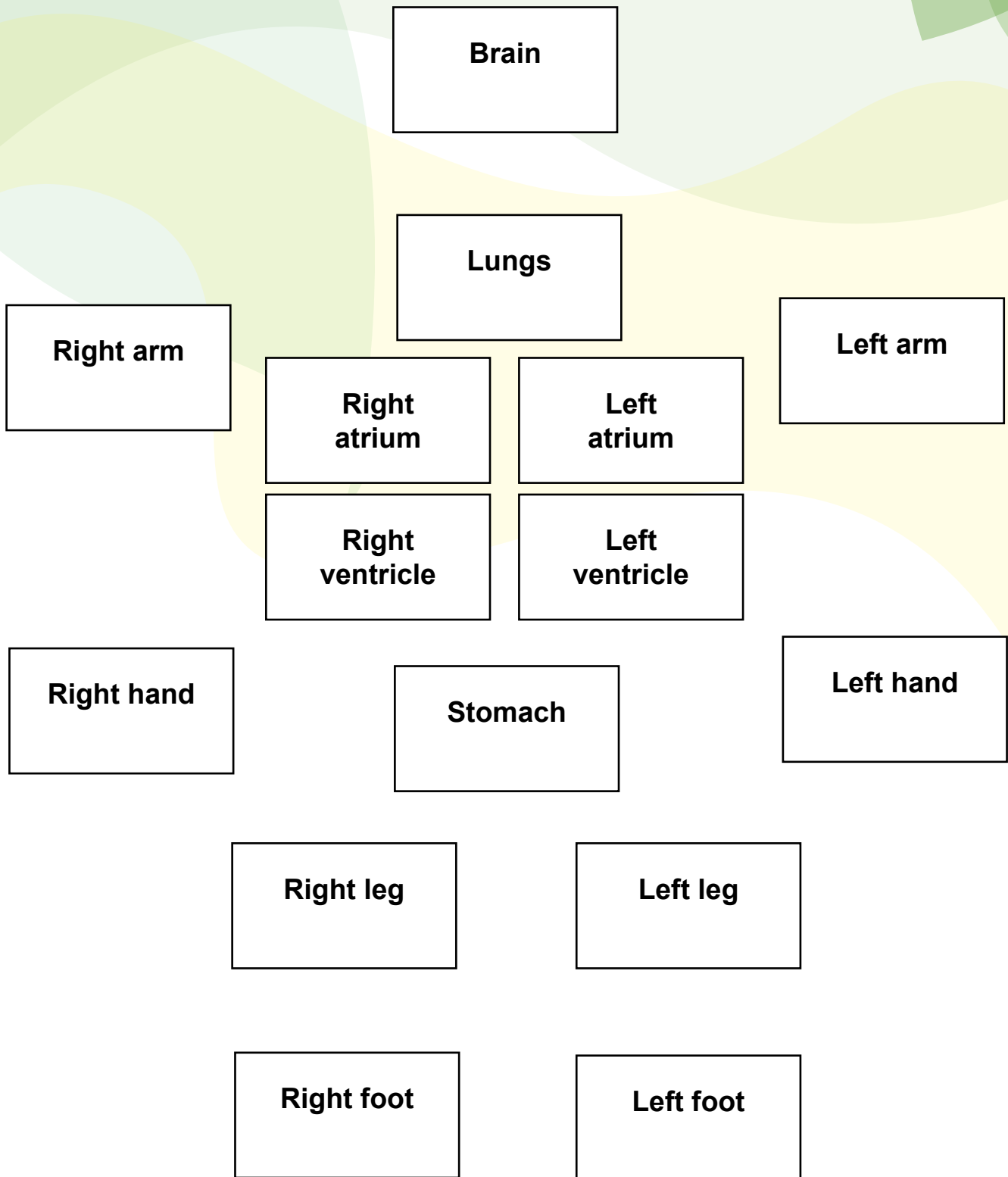
Procedure (Experiencing)

1. Provide each youth with a copy of the *Getting Physically Active with My Family* handout.
2. Ask them to take home the handout and complete the activity with their families. Explain that this activity asks them to participate in physical activity with their families. They will record everyone's heart and breathing rates before and after the activity, and then make a graph or chart of them.
3. When the youth return with the completed sheet, ask the youth to share their findings.

APPENDIX 2A: Container Labels

Brain	Lungs
Right arm	Right hand
Left arm	Left hand
Right leg	Right foot
Left leg	Left foot
Right atrium of the heart	Right ventricle of the heart
Left atrium of the heart	Left ventricle of the heart
Stomach	

APPENDIX 2B: Classroom Orientation

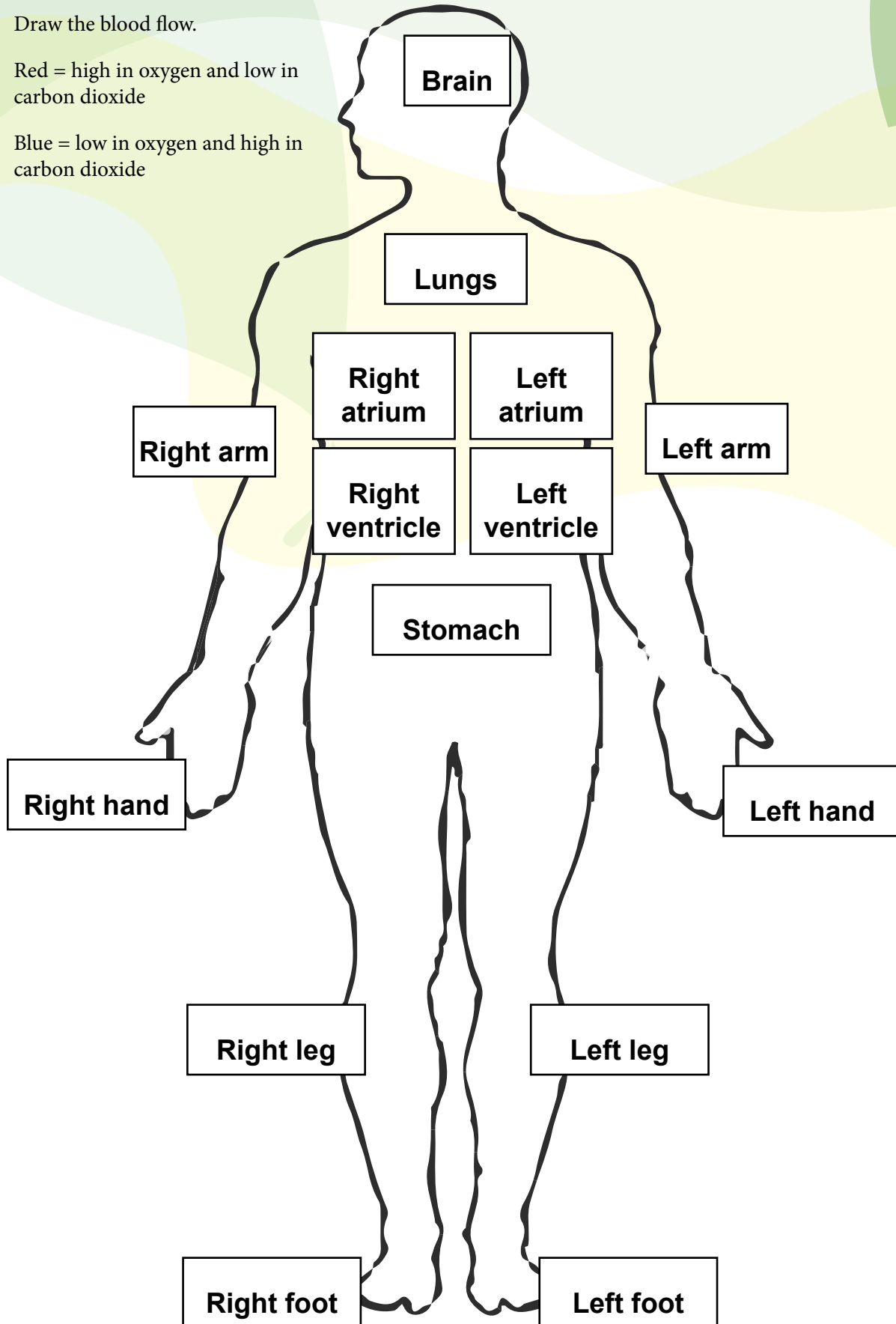


APPENDIX 2C: Human Body Outline

Draw the blood flow.

Red = high in oxygen and low in carbon dioxide

Blue = low in oxygen and high in carbon dioxide



APPENDIX 2D: Blood Flow Set Cards 1

Blood high in carbon dioxide (CO₂) and low in oxygen (O₂) flows from the BRAIN to the RIGHT ATRIUM.

Blood high in carbon dioxide (CO₂) and low in oxygen (O₂) flows from the RIGHT HAND to the RIGHT ATRIUM.

Blood high in carbon dioxide (CO₂) and low in oxygen (O₂) flows from the RIGHT ARM to the RIGHT ATRIUM.

Blood high in carbon dioxide (CO₂) and low in oxygen (O₂) flows from the LEFT ARM to the RIGHT ATRIUM.

Blood high in carbon dioxide (CO₂) and low in oxygen (O₂) flows from the RIGHT LEG to the RIGHT ATRIUM.

Blood high in carbon dioxide (CO₂) and low in oxygen (O₂) flows from the LEFT HAND to the RIGHT ATRIUM.

Blood high in carbon dioxide (CO₂) and low in oxygen (O₂) flows from the STOMACH to the RIGHT ATRIUM.

Blood high in carbon dioxide (CO₂) and low in oxygen (O₂) flows from the RIGHT FOOT to the RIGHT ATRIUM.

APPENDIX 2D: Blood Flow Set Cards 1

Blood high in carbon dioxide (CO₂) and low in oxygen (O₂) flows from the LEFT LEG to the RIGHT ATRIUM.

Blood high in carbon dioxide (CO₂) and low in oxygen (O₂) flows from the LEFT FOOT to the RIGHT ATRIUM.

Blood high in carbon dioxide (CO₂) and low in oxygen (O₂) flows from the RIGHT ATRIUM to the RIGHT VENTRICLE.

Blood high in oxygen (O₂) and low in carbon dioxide (CO₂) flows from the LUNGS to the LEFT ATRIUM.

Blood high in oxygen (O₂) and low in carbon dioxide (CO₂) flows from the LEFT ATRIUM to the LEFT VENTRICLE.

Blood high in carbon dioxide (CO₂) and low in oxygen (O₂) flows from the RIGHT VENTRICLE to the LUNGS.

APPENDIX 2E: Blood Flow Set Cards 2

Blood high in oxygen (O₂) and low in carbon dioxide (CO₂) flows from the LEFT VENTRICLE to the LEFT ARM.

Blood high in oxygen (O₂) and low in carbon dioxide (CO₂) flows from the LEFT VENTRICLE to the LEFT FOOT.

Blood high in oxygen (O₂) and low in carbon dioxide (CO₂) flows from the LEFT VENTRICLE to the LEFT LEG.

Blood high in oxygen (O₂) and low in carbon dioxide (CO₂) flows from the LEFT VENTRICLE to the LEFT HAND.

Blood high in oxygen (O₂) and low in carbon dioxide (CO₂) flows from the LEFT VENTRICLE to the RIGHT ARM.

Blood high in oxygen (O₂) and low in carbon dioxide (CO₂) flows from the LEFT VENTRICLE to the RIGHT LEG.

Blood high in oxygen (O₂) and low in carbon dioxide (CO₂) flows from the LEFT VENTRICLE to the STOMACH.

Blood high in oxygen (O₂) and low in carbon dioxide (CO₂) flows from the LEFT VENTRICLE to the BRAIN.

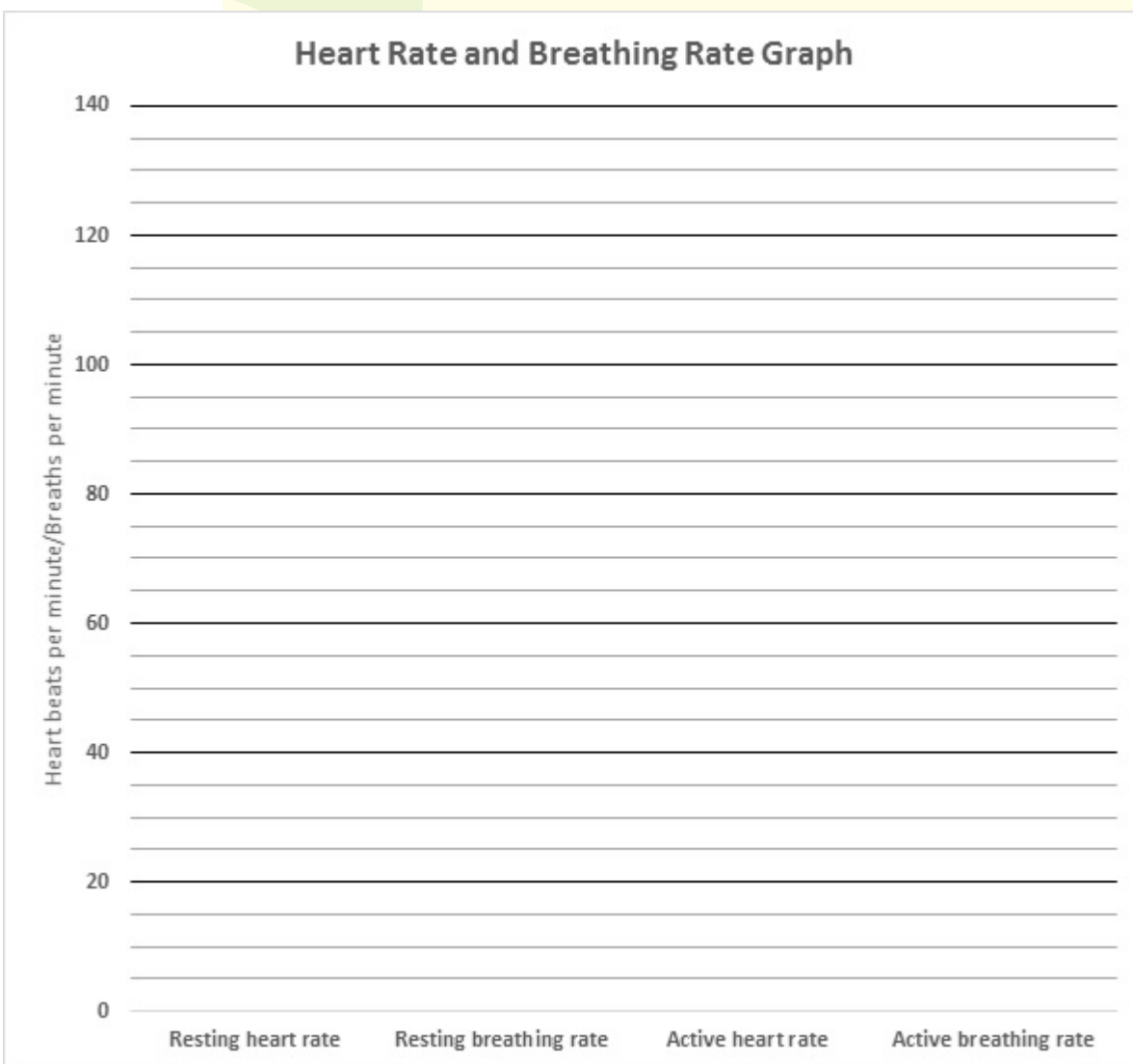
APPENDIX 2E: Blood Flow Set Cards 2

Blood high in oxygen (O₂) and low in carbon dioxide (CO₂) flows from the LEFT VENTRICLE to the RIGHT FOOT.

Blood high in oxygen (O₂) and low in carbon dioxide (CO₂) flows from the LEFT VENTRICLE to the RIGHT HAND.

APPENDIX 2F: Introduction to Heart Rate and Breathing Rate

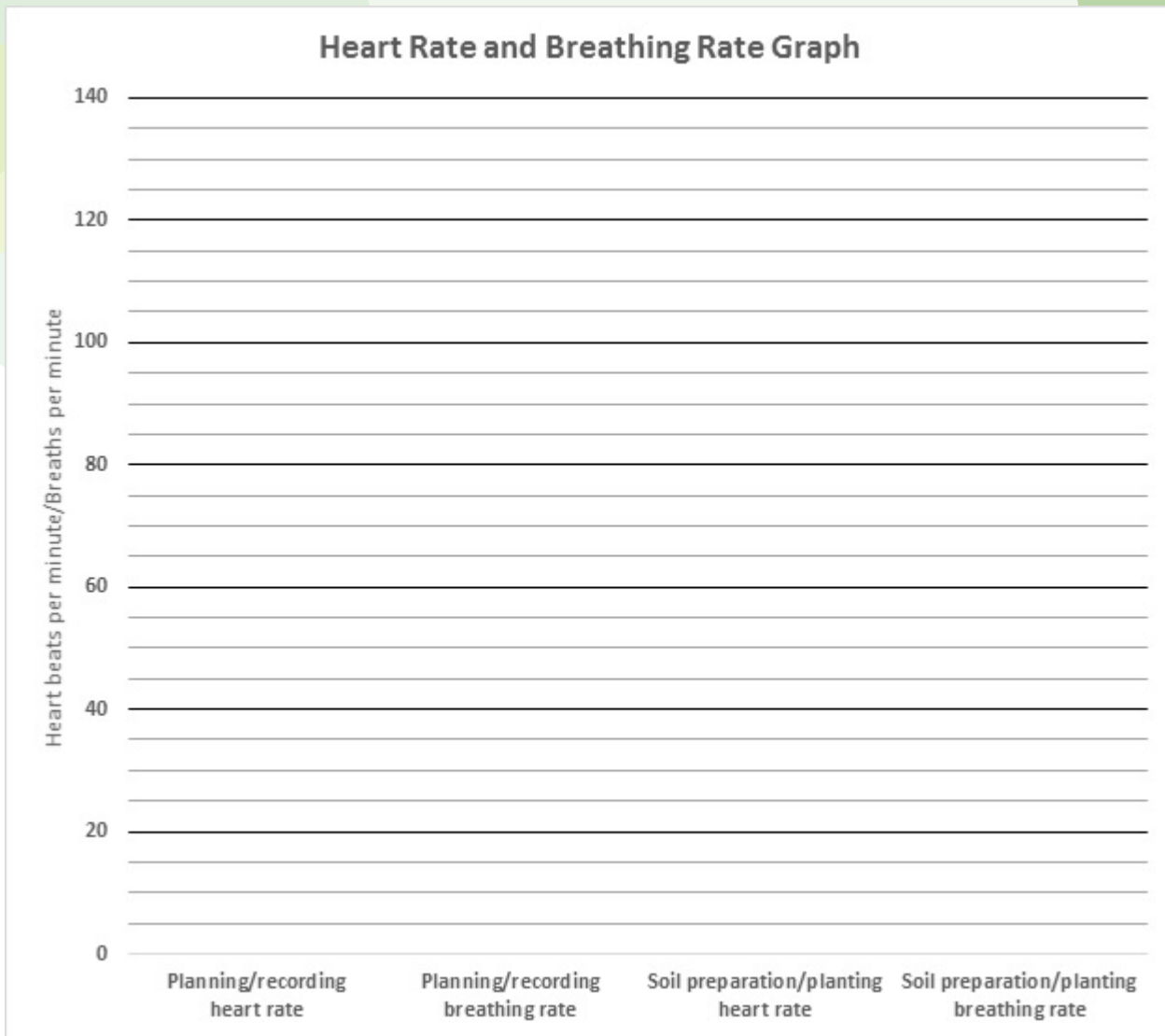
	Heart rate (heart beats per minute)	Breathing rate (breaths per minute)
Resting		
Active		



APPENDIX 2G: Heart and Breathing Rate Table

	What did you do during each activity?	Heart rate (heart beats per minute)	Breathing rate (breaths per minute)
Planning/ Recording			
Preparing soil/ Planting			

APPENDIX 2H: Heart and Breathing Rate Graph



APPENDIX 21: Goal Setting

What are some things you can do to meet the recommendation of 60 minutes of physical activity every day?

What are some things your family can do to meet the recommendation of 60 minutes of physical activity every day?

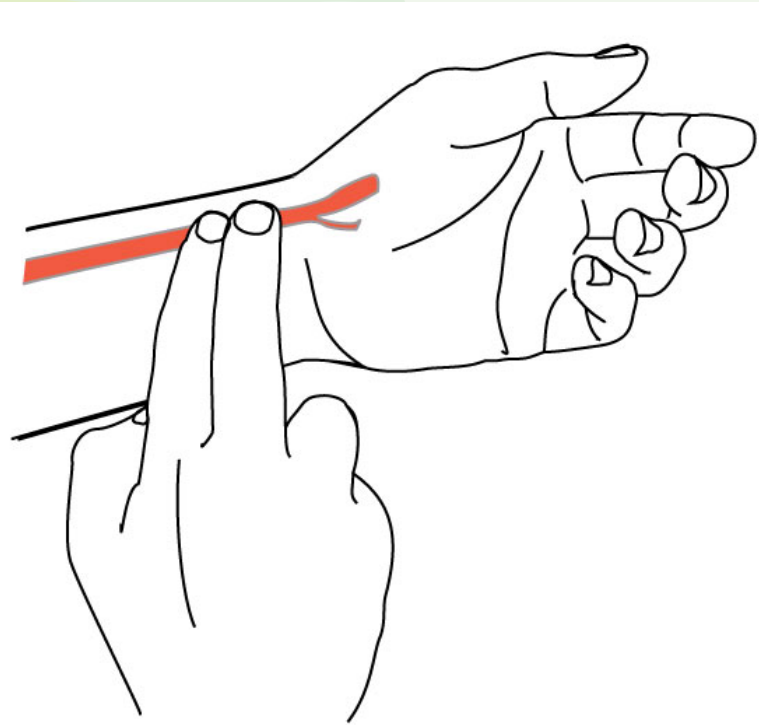
APPENDIX 2J: Getting Physically Active with My Family

Get physically active with your family. Physical activity can be biking, playing ball, jumping rope, walking, or even household activities like vacuuming or gardening. Before you and your family start the physical activity, have everyone find their heart rate and breathing rate and record it. After you and your family complete some kind of physical activity, have everyone find their heart rate and breathing rate and record it. Afterwards, complete the questions below:

Draw a graph or chart of you and your family members' heart rate and breathing rate.

What did you observe about the similarities and differences between the heart rates and breathing rates of you and your family members?

APPENDIX 2K: Finding Your Pulse



APPENDIX 2L: Recommended Fruits and Vegetables for Growing in California

Fruit or Vegetable	Season	MyPlate Vegetable Subgroup
beets	cool to warm	other
black beans	warm	beans and peas
black-eyed peas (cowpeas)	warm	beans and peas
broccoli	cool	dark green
cabbage	cool	other
carrots	cool	red and orange
corn	warm	starchy
cucumbers	warm	other
eggplant	warm	other
fresh peas	cool	starchy
garlic	warm	other
green beans	warm	other
kale	cool	dark green
kohlrabi	cool	other
leeks	warm	other
lettuce	cool	other
okra	warm	other
onion	warm	other
chiles	warm	other
potatoes	cool to warm	starchy
radishes	cool	other
soybeans	warm	beans and peas
spinach	cool	dark green
strawberries	cool to warm	n/a
summer squash	warm	other
sweet potatoes	warm	red and orange
Swiss chard	cool to warm	dark green
taro root	warm	starchy
tomato	warm	red and orange
winter squash	warm	red and orange

Recommended Herbs

Herb	Season
basil	warm
cilantro	cool to warm
mint	cool to warm
parsley	cool to warm

APPENDIX 2M: Recommended Habitat Plants for Growing in California

Facilitator Tip: When selecting habitat plants for the Lesson 2 garden concept application, select at least two types of plants for students to choose from. The more types of habitat plants grown in the garden will lead to a greater diversity of beneficial insects. Having more types of plants will also enhance the ability of students to make predictions about the plant that is best for attracting beneficial insects and make observations in the Lesson 7 garden concept application.

Plant name	Type	Edible/Nonedible
butterfly bush	perennial	nonedible
fennel	perennial	edible bulb and fronds
milkweed	perennial	nonedible
sunflower family	annual	nonedible
mint	perennial	edible
sage	perennial	edible
salvias	perennial	nonedible
native buckwheat	perennial	nonedible
pincushion flower	perennial	nonedible

Module 3: Nutrients We Need

Background Information

Nutrients play an important role in the lives of all living organisms. Nutrients that we obtain from food provide our bodies with the means and materials to grow, stay healthy, and give us **energy** to think, learn, and play. In order to maintain healthy bodies, it is important to understand the roles different nutrients play in our bodies and what foods can provide them.

There are six classes of nutrients: carbohydrates, protein, fat, water, minerals and vitamins. These six types of nutrients serve different functions in our bodies. The main function of **carbohydrates** is to provide our bodies with energy. Carbohydrates are classified into two categories: simple and complex. Simple carbohydrates are found in foods like fruit, milk, and vegetables. These carbohydrates provide energy slightly faster than complex carbohydrates. Complex carbohydrates are present in foods like starchy vegetables, beans, and whole wheat products. **Fiber**, which is found in foods like fruit, vegetables, and beans, is a special type of carbohydrate that is not typically digested in humans but is important for our digestive system to function properly. **Proteins**, which are found in beans and meat products, provide

our bodies with another source of energy, help build and repair our muscles, and are important parts of cell structure and function. **Fats** from foods like avocados, nuts, and meat products are stored in the body and also provide a source of energy. Fats are also an important part of the structure of cells in our bodies. There are two types of fats. **Oils** are fats that are liquid at room temperature. **Solid fats** are fats that are solid at room temperature. **Water** is a nutrient that helps transport materials through our body and helps regulate body temperature. **Minerals**, like **calcium** and **iron**, are important for growth, development, and maintenance of the tissues and cells in our bodies. **Vitamins**, like **vitamin A** and **vitamin C**, are important for growth, development, and maintenance of the tissues and cells in our bodies.

Some of the nutrients are considered **essential**. This means that our bodies can't make enough of it (or can't make it at all), so we must obtain them from food. Regardless of the specialized functions of nutrients, all are needed in certain amounts for maintaining health.

Concepts and Vocabulary

- **B-vitamins:** a group of many vitamins that help break down fat, protein, and carbohydrates for energy. They are also important for the growth, maintenance, and repair of the cells in our bodies.
- **Calcium:** a mineral that helps us build strong bones and teeth.
- **Carbohydrates:** a nutrient that provides the first source of energy that our bodies use; they provide energy to the body when needed immediately.
- **Energy:** something needed to fuel all processes in the body, from regulating our body temperature to being physically active.
- **Essential nutrients:** nutrients that our bodies do not make or cannot make enough of them and so we must obtain them from food.
- **Fat:** a nutrient that is a source of energy and is stored in the body. Fats are also an important part of the structure of cells in our bodies.
- **Fiber:** a type of carbohydrate that helps our digestive system to function properly.
- **Iron:** a mineral that is an important part of the blood because it carries oxygen to all of the tissues.
- **Minerals:** elements that are needed for growth, development, and maintenance of the body's tissues, like iron and calcium.
- **Nutrients:** substances our bodies need to grow and stay healthy.
- **Oils:** fats that are liquid at room temperature.
- **Potassium:** a mineral that helps our cells function.
- **Protein:** a nutrient that is used for energy; it helps to build and repair tissues and organs like muscles and the heart.

Concepts and Vocabulary (continued)

- **Solid fats:** fats that are solid at room temperature.
- **Vitamin A:** a vitamin that is important for our vision.
- **Vitamin C:** a vitamin that is important to keep our gums healthy and help our wounds heal.
- **Vitamin D:** a vitamin that is needed to help our bodies use calcium.
- **Vitamins:** molecules needed for growth, development, and maintenance of the body's tissues, like vitamin A and vitamin C.
- **Water:** a molecule made of hydrogen and oxygen that is necessary for moving oxygen and nutrients throughout our bodies. It also helps to regulate body temperature.

Life Skills

Cooperation, Communication, Critical Thinking, Healthy Life-Style Choices, Teamwork, Problem-Solving.

Subject Links

English-Language Arts, Nutrition, Health

Educational Standards Supported

Discovering Healthy Choices curriculum supports Next Generation Science Standards, Common Core State Standards, and California Nutrition Education Competencies. For specific details on standards and grade levels, please see page 9.

3.1

Activity 3.1: Classroom Activity

Getting Ready

- Make copies of *Food Cards (Set 1)* (Appendix 3A); one set for each group.
- Make copies of *Protein, Fat and Carbohydrates Cards (Set 2)* (Appendix 3B); one set for each group.
- Make copies of *Nutrient Information* (Appendix 3C); one for each group.
- Make copies of the *Observations* sheet (Appendix 3D); one for each group.
- Organize the class into small groups of 3 to 4 youth.

Facilitator Tip: These can be the same groups that were formed in Lesson 1, Activity 1. By doing so, the youth may continue developing teamwork skills with the same group members.

- Provide each group with a sheet of flip chart paper and markers to answer opening questions.

Time Required

60 to 75 minutes

Suggested Groupings

Small groups of 3 to 4 youth

Materials Needed

(*Materials provided in curriculum)

- Flip chart paper
- Markers or writing utensils
- **Food Cards (Set 1)* (Appendix 3A)
- **Protein, Fat, and Carbohydrate Cards (Set 2)* (Appendix 3B)
- **Nutrient Information* (Appendix 3C)
- **Observations* (Appendix 3D)

Opening Questions/Prompts

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

- Explain what you know about what a nutrient is.
- Explain what you know about different types of nutrients.
- Explain what you know about foods that are considered nutritious.

Procedure (Experiencing)

1. Provide each group with one set of *Food Cards (Set 1)* and one copy of the *Observations* sheet.
2. Ask each group to look carefully through the set of cards and observe similarities and differences between the foods. Ask each group to write down their observations on the *Observations* sheet under question number 1.
3. Have the youth sort the cards according to similarities and differences.
4. Provide each group with *Protein, Fat, and Carbohydrate Cards (Set 2)* and ask the youth to read the cards.
5. Ask the youth to categorize which foods from the cards in Set 1 they think fall within each of the categories from the cards in Set 2 (Protein, Fat, and Carbohydrate).
6. Ask each group to write down their observations on the *Observations* sheet under question number 2.
7. Distribute the *Nutrient Information* sheet to each group.

Facilitator Tip: The nutrients listed on the sheet meet the FDA requirement for labeling that foods “contain,” are “good sources” of, and “provide” a nutrient. These nutrients represent at least 10% of the Daily Value for one serving of the food.

8. Ask the youth to read the information and categorize the foods they chose based on the nutrients.
9. Ask each group to write down their observations on the *Observations* sheet under question number 3.

Sharing, Processing, and Generalizing

1. Ask the youth in each group to share what they observed and recorded on their *Observations* sheets.
2. Follow the lines of thinking developed through general thoughts, observations, and questions raised by the youth. If necessary, use more targeted questions/prompts:
 - Explain how you went about categorizing the *Food Cards*.
 - Explain how you categorized the cards according to Proteins, Fat, and Carbohydrates, and what your conclusions were.
 - Explain any patterns you might have noticed regarding different types of foods that have similar nutrients.
 - Explain how you think humans might be able to go about obtaining all the nutrients they need through their diets.

Concept and Term Discovery/Introduction

Youth should understand the variety of nutrients found in different foods, and that it is important that we eat a variety of foods to get all the nutrients we need. It is also important that youth understand the importance of the different nutrients and the variety of functions they perform. Additionally, make sure that key vocabulary terms are either discovered by the youth or introduced to them: **nutrients, essential nutrients, energy, carbohydrates, fiber, protein, fat, oils, solid fats, minerals, calcium, iron, potassium, vitamins, B-vitamins, vitamin A, vitamin C, and vitamin D.**

Activity 3.2: Classroom Concept Application

Getting Ready

1. Make copies of the *Where in the World* handout (Appendix 3E), one for each youth.

Procedure (Experiencing)

1. Provide the youth with the *Where in the World* handout.
2. Ask the youth to find out if the plants that are growing in their group's garden plot are grown in the United States, in other countries, and/or in the state of California. If they are grown in California, find out where.
3. Ask the youth to record their findings on the *Where in the World* handout.

Facilitator Tip: Youth may research this in the library or on the internet. Some suggested websites for research include

- The University of California Cooperative Extension Virtual Tour of Vegetable Production website, http://vric.ucdavis.edu/main/virtual_tour.htm
- The Wikipedia website, <http://www.wikipedia.org>

Time Required

30 to 60 minutes

Facilitator Tip: this can be done during classroom time or as a homework assignment. This activity will help prepare the youth for Activity 3.3: Garden Concept Application.

Materials Needed

(*Materials provided in curriculum)

- **Where in the World* (Appendix 3E)

Activity 3.3: Garden Concept Application

Getting Ready

- Make copies of the *Vegetable Profile* worksheet (Appendix 3F) so that each group has one copy for each of the vegetables growing in their group's garden plot.
- Make copies of the *Nutrition Facts* handouts (Appendix 3G); one for each group.
- Make copies of the *Nutrition and Agriculture Around the World* handouts (Appendix 1A); one set for each group.
- Organize the class into small groups of 3 to 4 youth.

Facilitator Tip: These can be the same groups that were formed in Lesson 1, Activity 1. By doing so, the youth may continue developing teamwork skills with the same group members.

- Provide each group with a sheet of flip chart paper and markers to answer opening questions.

Time Required

60 to 75 minutes

Suggested Groupings

Small groups of 3 to 4 youth

Materials Needed

(* Materials provided in curriculum)

- Flip chart paper
- Markers or writing utensils
- **Vegetable Profile* worksheets (Appendix 3F)
- **Nutrition Facts* handouts (Appendix 3G)
- **Nutrition and Agriculture Around the World* handouts (Appendix 1A)
- Blank paper
- Tape measurers

Opening Questions/Prompts

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

- Explain what you know about nutrients.
- Explain what you know about what different nutrients do to help keep our bodies healthy.
- Explain what you know about vegetables that are grown in different countries.
- Explain what you know about vegetables that are grown in California.

Procedure (Experiencing)

1. Provide copies of the *Vegetable Profile* worksheet and *Nutrition Facts* handout to each group. Groups need one copy of the *Vegetable Profile* worksheet for each type of vegetable growing in their garden plot; groups need only one *Nutrition Facts* handout.
2. Ask the youth to complete one *Vegetable Profile* worksheet for each vegetable they are growing in their assigned garden plot. To help them, they can use the *Nutrition Facts* handout, the *Nutrition and Agriculture Around the World* handouts from Activity 1.1, and/or their findings from Activity 3.2.

Facilitator Tip: The nutrients listed on the Nutrition Facts handout are those that meet the FDA requirement for labeling that foods “contain,” are “good sources” of, and “provide” a nutrient. These nutrients represent at least 10% of the Daily Value for one serving of the food.

3. Provide each group with a sheet of blank paper.
4. Ask the youth to use the blank paper to make a map of the vegetables in their garden plot. This map should provide the dimensions of their garden plot, the plants being grown in their garden plot, and where in the garden plot each plant type is located.

Facilitator Tip: The completed *Vegetable Profile* worksheets and garden plot maps can be put into a binder and assembled into a classroom garden portfolio, or they can be displayed on the classroom wall.

Sharing, Processing, and Generalizing

1. Have each group share their *Vegetable Profiles* and the map of their garden plot.
2. Follow the lines of thinking developed through general thoughts, observations, and questions raised by the youth. If necessary, ask more targeted questions/prompts.
 - Explain how you went about identifying the characteristics of each vegetable in your garden plot to complete the *Vegetable Profile* worksheets.
 - Explain what you noticed about the different types of vegetables in your garden plots and the similarities and differences in the nutrients they have.

Concept Term Discovery/Introduction

Make sure that youth understand the different nutrients found in different types of vegetables. Youth should understand that different types of vegetables are from different countries, but also many are grown in the United States and regionally within the state of California.

3.4

Activity 3.4: Home Concept Application

Getting Ready

- Make copies of *Where Our Nutrients Come From* (Appendix 3H); one copy for each youth.

Procedure (Experiencing)

1. Provide each youth with a copy of the *Where Our Nutrients Come From* handout.
2. Explain to the youth that they will bring this activity home and complete it with their families.
3. Explain that this activity is to visit a farmer's market or the grocery store to find out where different types of produce come from. Ask them to select five vegetables to investigate. To find out, ask the people who work there or look for labels that say where the vegetable or fruit was grown.
4. When the youth return with the completed sheet, ask the youth to share what they learned.

Time Required

5 to 10 minutes

Materials Needed

(*Materials provided in curriculum)

- **Where Our Nutrients Come From* (Appendix 3H)

3.5

Activity 3.5: Goal Setting Application

Procedure (Experiencing)

1. Provide each youth with a copy of the *Goal Setting* handout (Appendix 3I).
2. Ask the youth to bring home this week's goal setting sheet and complete it with their families. They will answer the following questions:
 - What are some things you can do to help ensure you obtain all the nutrients you need?
 - What are some things your family can do help achieve this goal?
3. When the youth return with the completed sheet, ask the youth to share the goals they set for themselves and for their families to get all the nutrients they need.

Time Required

5 to 10 minutes

Materials Needed

(*Materials provided in curriculum)

- **Goal Setting* (Appendix 3I)

APPENDIX 3A: Food Cards (Set 1)

Cheese



Whole-Wheat Bread



APPENDIX 3A: Food Cards (Set 1)

Eggs

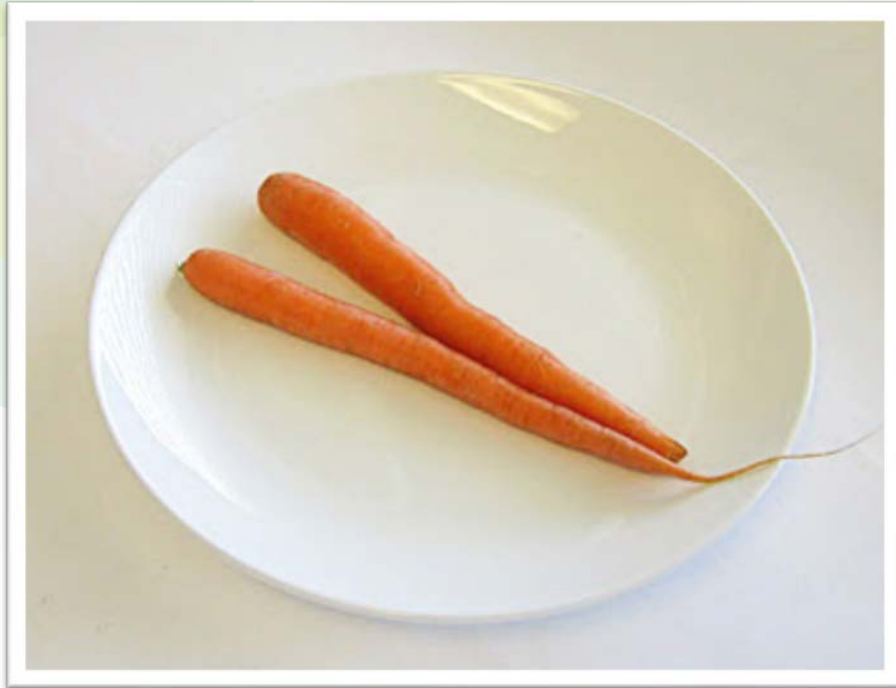


Fish



APPENDIX 3A: Food Cards (Set 1)

Carrots



Potato



APPENDIX 3A: Food Cards (Set 1)

Chicken



Broccoli



APPENDIX 3A: Food Cards (Set 1)

Peanuts



Oats



APPENDIX 3A: Food Cards (Set 1)

Apple



Milk



APPENDIX 3A: Food Cards (Set 1)

Tomato



Grapes



APPENDIX 3A: Food Cards (Set 1)

Spinach



Bok Choy



APPENDIX 3A: Food Cards (Set 1)

Avocado



Beans



APPENDIX 3B: Protein, Fat, and Carbohydrate Cards (Set 2)

Protein

This nutrient provides our bodies with another source of energy, helps build and repair our muscles, and is important for cell structure and function.

Examples of food that have a lot of protein are beef, chicken, fish, peanuts, beans, and milk.

Fat

This nutrient provides a source of energy and is stored in the body. Fats are also an important part of the structure of cells in our bodies.

There are different types of fats. Oils are fats that are liquid at room temperature. They often have many nutrients that are important to our health. There are also fats that are solid at room temperature and should be limited in our diets.

Examples of foods that have oils include peanuts, fish, and avocados. Examples of foods that have solid fats are beef, chicken, and milk.

Carbohydrates

The main function of **carbohydrates** is to provide our bodies with energy. Carbohydrates are classified into two categories: simple and complex. Simple carbohydrates provide energy slightly faster than complex carbohydrates. Fiber is a special type of carbohydrate that is not typically digested in humans, but is important for our digestive system to function properly.

Simple carbohydrates are found in foods like fruit, milk, and vegetables. Complex carbohydrates are present in foods like starchy vegetables, beans, and whole-wheat products.

Foods high in fiber include avocados, broccoli, whole wheat bread, carrots, and beans.

APPENDIX 3C: Nutrient Information Sheet

Food	Key Nutrients and Their Functions
apples	Carbohydrates Fiber: helps our digestive system function properly. Vitamin C: keeps our gums healthy and helps our wounds heal.
avocados	Carbohydrates and fat (mostly oils but some solid fat). Fiber: helps our digestive system function properly. Potassium: a mineral that helps our cells function. Vitamin C: keeps our gums healthy and helps our wounds heal.
beans	A lot of protein and some carbohydrate. Fiber: helps our digestive system function properly. B-Vitamins: break down fat, protein, and carbohydrates for energy and help in growth, maintenance, and repair of the cells in our bodies. Iron: a mineral that helps carry oxygen throughout our body. Potassium: a mineral that helps our cells function.
bok choy	Not much carbohydrates, protein, or fat. Fiber: helps our digestive system function properly. Vitamin A: important for vision. Vitamin C: keeps our gums healthy and helps our wounds heal. Iron: a mineral that helps carry oxygen throughout our body.
broccoli	Not much carbohydrates, protein, or fat. Fiber: helps our digestive system function properly. Vitamin A: important for vision. Vitamin C: keeps our gums healthy and helps our wounds heal. Iron: a mineral that helps carry oxygen throughout our body. Calcium: helps build strong teeth and bones.
carrots	Not much carbohydrates, protein or fats. Fiber: helps our digestive system function properly. Vitamin A: important for vision. Vitamin C: keeps our gums healthy and helps our wounds heal.
cheese	A lot of protein and some fat (mostly solid fat). Vitamin A: important for vision. Calcium: helps build strong teeth and bones.
chicken	A lot of protein and some fat (mostly solid fat). Iron: a mineral that helps carry oxygen throughout our body. B-Vitamins: break down fat, protein, and carbohydrates for energy and help in growth, maintenance, and repair of the cells in our bodies.
eggs	A lot of protein. Vitamin A: important for vision. B-Vitamins: break down fat, protein, and carbohydrates for energy and help in growth, maintenance, and repair of the cells in our bodies. Iron: a mineral that helps carry oxygen throughout your body.

APPENDIX 3C: Nutrient Information Sheet

fish	<p>A lot of protein and some fat (mostly oils).</p> <p>B-Vitamins: break down fat, protein, and carbohydrates for energy and help in growth, maintenance, and repair of the cells in our bodies.</p> <p>Vitamin D: it helps our bodies use calcium (found in some fish like salmon and mackerel).</p>
grapes	<p>Not much carbohydrates, protein, or fats.</p> <p>Vitamin C: keeps our gums healthy and helps our wounds heal.</p>
milk	<p>A lot of protein and some fat (mostly solid fat).</p> <p>Vitamin A: important for vision.</p> <p>B-Vitamins: break down fat, protein, and carbohydrates for energy and help in growth, maintenance, and repair of the cells in our bodies.</p> <p>Calcium: helps build strong teeth and bones.</p> <p>Vitamin D: helps our bodies use calcium.</p>
oats	<p>A lot of carbohydrates and protein.</p> <p>Fiber: a nutrient that helps our bodies digest food.</p> <p>Iron: a mineral that helps carry oxygen throughout our body.</p>
peanuts	<p>A lot of protein and fat (mostly oils).</p> <p>Fiber: helps our digestive system function properly.</p> <p>B-Vitamins: break down fat, protein, and carbohydrates for energy and help in growth, maintenance, and repair of the cells in our bodies.</p>
potatoes	<p>A lot of carbohydrates.</p> <p>Fiber: helps our digestive system function properly.</p> <p>Potassium: a mineral that helps our cells function.</p> <p>Iron: a mineral that helps carry oxygen throughout our body.</p> <p>B-Vitamins: break down fat, protein, and carbohydrates for energy and help in growth, maintenance, and repair of the cells in our bodies.</p>
spinach	<p>Not much carbohydrates, protein, or fats.</p> <p>Vitamin A: important for vision.</p> <p>Vitamin C: keeps our gums healthy and helps our wounds heal.</p> <p>Iron: a mineral that helps carry oxygen throughout our body.</p>
tomatoes	<p>Not much carbohydrates, protein, or fats.</p> <p>Potassium: a mineral that helps our cells function.</p> <p>Vitamin A: important for vision.</p> <p>Vitamin C: keeps our gums healthy and helps our wounds heal.</p>
whole wheat bread	<p>A lot of carbohydrates.</p> <p>Fiber: helps our digestive system function properly.</p> <p>Iron: a mineral that helps carry oxygen throughout our body.</p> <p>B-Vitamins: break down fat, protein, and carbohydrates for energy and help in growth, maintenance, and repair of the cells in our bodies.</p>

APPENDIX 3D: Observations

1. **Explain how you categorized the foods and describe some of your observations.**
2. **Explain how you categorized the foods according to protein, carbohydrate, or fat. Describe some of your observations.**
3. **Explain how you categorized the foods according to vitamins and minerals. Describe some of your observations.**

APPENDIX 3E: Where in the World

Investigate the fruits and vegetables that you planted in your garden plot.

List the vegetables being grown in your garden plot.

Which of the vegetables are grown by farmers in California?

Which of the vegetables are grown in other states in the United States?

Which of these vegetables are grown by farmers in other countries around the world?

APPENDIX 3F: Vegetable Profile

Name of vegetable: _____

Describe or draw a picture of the vegetable in the box below.

What are the key nutrients found in this vegetable?

Nutrient	How does this nutrient help our bodies stay healthy?

Where in the world, the United States, or California is this vegetable grown?

APPENDIX 3G: Nutrition Facts

Vegetables	Nutrients
beets	B-vitamins, vitamin C, fiber
black beans	protein, B-vitamins, fiber, iron, potassium
black-eyed peas (cowpeas)	carbohydrates, protein, B-vitamins, fiber, iron, potassium
broccoli	B-vitamins, vitamin C
cabbage	B-vitamins, vitamin C, fiber
carrots	vitamin A, vitamin C, fiber
chile pepper	vitamin A, B-vitamins, vitamin C
corn	B-vitamins, vitamin C
cucumbers	water
eggplant	water
fresh peas	protein, vitamin A, B-vitamins, vitamin C, fiber
garlic	carbohydrates, protein, B-vitamins, vitamin C, calcium
green beans	vitamin A, vitamin C, fiber
kale	vitamin A, B-vitamins, vitamin C, calcium, iron, fiber
kohlrabi	vitamin C, fiber, potassium
leeks	vitamin A, B-vitamins, vitamin C, iron
lettuce	water
okra	B-vitamins, vitamin C, fiber
onion	vitamin C
potatoes	carbohydrates, fiber, potassium
radishes	water
soybeans	fat (oils), protein, calcium, iron, potassium
spinach	vitamin A, vitamin C
summer squash	vitamin C
sweet potatoes	vitamin A, fiber, potassium
Swiss chard	vitamin A, vitamin C, potassium
taro root	protein, vitamin C, calcium, iron, fiber, potassium
tomatoes	potassium, vitamin A, vitamin C
winter squash	vitamin A, vitamin C, potassium

APPENDIX 3H: Where Our Nutrients Come From

Visit a farmer's market or grocery store with your family to find out where the produce you purchase is grown. Select five vegetables to investigate.

To find out where the vegetables were grown, ask someone who works there or look for labels that say where the produce comes from.

Record your observations below.

APPENDIX 3I: Goal Setting

What are some things you can do to help ensure you obtain all the nutrients you need?

What are some things your family can do to help achieve this goal?

Module 4: Food Math

Background Information

The amount of nutrients you can obtain from a food depends on the size of a serving. This amount, called **serving size**, is displayed on the **Nutrition Facts** label found on food packaging. Serving sizes are **standard reference amounts** that are set by the United States Food and Drug Administration (FDA). Serving sizes differ depending on the type of food. For example, a serving size of peanut butter is 2 tablespoons, while a serving size of breakfast cereal is 1 cup. Serving sizes are often considered the recommended amount that a person should eat; however, they are simply reference amounts that help us to compare the nutrients in different foods.

In contrast to serving sizes, which are standard measurements, **portions** are **subjective amounts**. Portion sizes vary from person to person and can be as large or as small as someone chooses.

Portion sizes and serving sizes can be described using different measurements: length, weight, or volume. **Length measurements** are commonly used with fruits like bananas, vegetables such as whole carrots or celery, or dishes like casseroles and lasagnas. **Weight measurements** refer to the mass of a food and can be thought of in ounces or grams for dry products and fluid ounces for liquids. **Volume measurements** refer to the amount of three-dimensional space a product takes up, like a tablespoon or cup, whether liquid or dry.

Concepts and Vocabulary

- **Length:** a measurement that uses inches or centimeters to describe an object end to end.
- **Nutrition Facts:** a label on food packaging that lists a variety of nutrients and how much of each is contained in a serving.
- **Portion:** a subjective amount of food that can vary in size from person to person.
- **Serving size:** a standardized amount of a food determined by the FDA; found on the Nutrition Facts label on food packaging.
- **Standard reference amount:** an amount that is used for the basis of comparison.
- **Subjective:** something that is dependent upon the views or thoughts of an individual and may be different from person to person.
- **Volume:** a measurement of the three-dimensional space that a food takes up; measured using teaspoons, tablespoons, or cups for both liquid and dry foods.
- **Weight:** a measure of the mass of an object using grams, ounces, or pounds.
- **Yield:** the amount of crops produced through cultivation of a garden or agricultural land.

Life Skills

Teamwork, Contributions to Group Effort, Problem Solving, Healthy Lifestyle Choices, Communication, Sharing, Critical Thinking.

Subject Links

Science, Math, Health, Nutrition

Educational Standards Supported

Discovering Healthy Choices curriculum supports Next Generation Science Standards, Common Core State Standards, and California Nutrition Education Competencies. For specific details on standards and grade levels, please see page 9.

4.1

Activity 4.1: Classroom Activity

Time Required

60 to 75 minutes

Suggested Groupings

Small groups of 3 to 4 youth

Materials Needed

(*Materials provided in curriculum)

- Flip chart paper
- Markers or writing utensils
- **Breakfast Breakdown* (Appendix 4A)
- **Breakfast Patties* (Appendix 4B)
- Popular children's cereal; enough for each group to pour a generous portion
Facilitator Tip: It is important that the cereal chosen is a popular cereal, not a healthy or generic cereal. You will need enough cereal for each group to pour one generous portion.
- 100% juice (e.g., apple, orange); enough for each group to pour a generous portion
Facilitator Tip: Juice may be substituted with water.
- Peanut Butter
Facilitator Tip: These foods will not be eaten. However, if there are youth with severe peanut allergies, the peanut butter should be substituted with almond butter or fruit jelly.
- Set of measuring cups ($\frac{1}{4}$, $\frac{1}{2}$, and 1 cup); one set for each group.
- Large measuring cup (preferably holding 2 cups or more); one for each group.
- Measuring spoons with teaspoons and tablespoons; one set for each group.
Facilitator Tip: Ask to borrow measuring cups and spoons from parents so they don't have to be purchased.
Facilitator Tip: If there are not enough measuring tools for each group to have one set, they can be shared at a central supplies table.
- Plastic spoons for spreading peanut butter; one for each group
- Paper or plastic cereal bowls; one for each group
- Drinking cups (at least 12 oz); one for each group
- Small paper or plastic plates; one for each group
- Plastic bag or other container for food waste; one for each group

Getting Ready

1. Make copies of the *Breakfast Breakdown* worksheet (Appendix 4A), one for each group.
2. Make copies of the *Breakfast Patties* (Appendix 4B), one set for each group.
3. Set up four food stations: one with the cereal; one with the juice; one with the peanut butter; and one with the sets of *Breakfast Patties*.

Facilitator tip: The peanut butter can get a little messy. Flip chart paper or newspaper can be placed under the food items to help keep the areas clean. Additionally, have paper towels available for wiping hands clean.

- Organize the class into small groups of 3 to 4 youth.

Facilitator Tip: These can be the same groups that were formed in Lesson 1, Activity 1. By doing so, the youth may continue developing teamwork skills with the same group members.

- Provide each group with a sheet of flip chart paper and markers to answer opening questions/prompts.

Opening Questions/Prompts

Ask the youth to respond to each question below by recording their thoughts on their flip chart paper with markers and sharing their ideas verbally.

- Explain how you decide how much food to eat when you sit down for a meal or have a snack.
- Explain what you know about how we measure amounts of food.

Procedure (Experiencing)

1. Provide each group with a copy of the *Breakfast Breakdown* worksheet.
2. Provide each group with a set of measuring cups and a set of measuring spoons.
3. Provide each group with a plastic spoon, cereal bowl, drinking cup, paper or plastic plate, and plastic bag for food waste.
4. Explain to the youth that they will be serving themselves amounts of foods that are commonly consumed at breakfast. Tell them that the foods used in this activity are not to be eaten during this activity.
5. Distribute the groups equally among the different food stations.
6. Ask the groups at each of the stations to work together to decide how much of each food they might typically take. Ask them to pour the amount of cereal they might typically eat into one bowl. Then, ask them to pour the amount of juice they might typically drink into the cup. Next, ask them to spread the quantity of peanut butter onto the plate that they would spread onto a piece of bread or toast. Lastly, from the set of *Breakfast Patties* handouts, ask the youth to select the size of breakfast patty they might typically choose at breakfast.

Facilitator Tip: These foods may not be what the youth customarily eat, but it is important that they take some of each food. Some youth may take very large amounts of cereal and/or peanut butter.

7. Have the youth rotate between the stations until they have taken one of each of the foods.
8. Ask the youth to use any of the measuring tools available to measure the amounts of cereal, juice, and peanut butter that they served themselves. Have them record the measurements in the second column on the *Breakfast Breakdown* worksheet titled “Portion,” making sure to record the units of measurement they used. For the breakfast patties, ask them to record the amount that is found in the lower right-hand corner of the *Breakfast Patties* portion they chose.

Facilitator Tip: Some youth may need help being precise in their measurements. Make sure that they fill up the cups and level them off.

Procedure (Experiencing) (continued)

Facilitator Tip: Do not continue to Step 9 until the youth have finished Step 8. It is important that the serving sizes are not revealed until the youth have finished measuring their portions.

9. On the chalkboard, whiteboard, or overhead projector, write the serving sizes of each food type:
 - Cereal = 1 cup (56 grams)
 - Juice = 8 ounces (1 cup)
 - Peanut butter, almond butter, or jam = 2 tablespoons ($\frac{1}{8}$ cup)
 - Meat patty = 2 ounces (56 grams)
10. Ask the youth to record the serving sizes for each food on their *Breakfast Breakdown* worksheet.
11. Ask each group to calculate the difference between the portion they served themselves and the serving size. Have them record the difference in the third column, titled “Difference between portion and serving size” on the *Breakfast Breakdown* worksheet.

Facilitator Tip: In order to calculate the difference, youth may first need to convert their measurements between cups, tablespoons, and ounces. Conversions are listed near the bottom of the *Breakfast Breakdown* worksheet.
12. Ask each group to calculate the number of servings that were in the portions they served themselves by dividing the portion by the serving sizes. Have them record this in the “Number of Servings in the Portion” column.

Sharing, Processing, and Generalizing

1. Have each of the groups share what they noticed as they completed the *Breakfast Breakdown* worksheet.
2. Follow the lines of thinking by the youth through their general thoughts, observations, and questions; if necessary, ask more targeted questions:
 - Explain what you observed when you compared the amount you chose for each food and the serving size.
 - Explain how you went about deciding which measuring tools to use.
 - Explain how you went about finding the difference between the portion and serving size.
 - Explain how you found the number of servings you measured in the portion of each food.
 - Explain what you think is important about knowing serving sizes.

Concept Term Discovery/Introduction

It is important that youth understand the difference between a **portion**, an amount of food subjectively served, and a **serving size** that is a standard measure that is measured precisely. They should also understand that serving sizes are important for being able to compare the nutrients content of foods from one to another. It is important that youth clearly understand that the serving size of a food is not a recommended amount but a reference amount. Make sure the youth discover or are introduced to the following key terms: **volume, length, weight, cups, ounces, tablespoons, teaspoons, serving size, portion, standard, and subjective.**

Activity 4.2: Home Concept Application

Getting Ready

- Make copies of the *Track Your Snack* worksheet (Appendix 4C), one for each youth.

Procedure (Experiencing)

1. Ask the youth to complete the *Track Your Snack* worksheet at home with their families.
2. Explain that the activity will ask the youth and their family members to serve themselves a portion of any food, and then measure it. Next, they will locate the serving size on the Nutrition Facts label. Finally, they will calculate the difference between the portion and the serving size, and find out the number of servings in the portion.
3. After the youth have returned with their completed worksheets, ask them to share their findings.

Time Required

5 to 10 minutes

Materials

- (*Materials provided in curriculum)
- **Track Your Snack* (Appendix 4C)

Activity 4.3 Garden Concept Application

Getting Ready

1. Purchase or harvest vegetables.
2. Prepare the whole vegetables, one for each group, by washing them.
3. Prepare the chopped vegetables by washing them and roughly chopping them, so that there is one whole vegetable that has been chopped for each group. Store each chopped vegetable in a separate plastic storage container, one for each group.
4. Make copies of the *What's in a Vegetable* worksheet (Appendix 4D), one for each group.
5. Make copies of the *Garden to Kitchen Predictions* worksheet (Appendix 4E), one for each group.
6. Organize the class into small groups of 3 to 4 youth.

Facilitator Tip: These can be the same groups that were formed in Lesson 1, Activity 1. By doing so, the youth may continue developing teamwork skills with the same group members.

Facilitator Tip: One-third of the groups will receive two carrots: one whole carrot and one that has been chopped.

One third of the groups will receive two cucumbers: one whole and one that has been chopped. One third of the groups will receive Swiss chard: one whole bunch and one bunch that has been chopped.

7. Provide each group with a sheet of flip chart paper and markers to answer opening questions.

Time Required

60 to 75 minutes

Suggested Groupings

Small groups of 3 to 4 youth

Materials Needed

(*Materials Provided in the Curriculum)

- Flip chart paper
- Markers or other writing utensils
- **What's in a Vegetable* (Appendix 4D)
- **Garden to Kitchen Predictions* (Appendix 4E)
- Vegetables: medium carrots (6-7"), medium cucumbers (8"), and bunches of Swiss chard
- Plastic storage containers
- Measuring cups
- Rulers

Facilitator Tip: If there are not enough measuring tools for each group, set up a central supplies table for sharing.

Opening Questions/Prompts

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

- Describe what you know about serving sizes.
- Explain what you know about the different tools that are used for measuring serving sizes.

Procedure (Experiencing)

1. Provide one copy of the *What's in a Vegetable* worksheet to each group.
2. Count off the groups in threes (1s, 2s, and 3s).
3. Provide all number 1 groups with one whole carrot and one chopped carrot each.
4. Provide all number 2 groups with one whole cucumber and one chopped cucumber each.
5. Provide all number 3 groups with one whole bunch of Swiss chard and one chopped bunch each.
6. Provide each group with a set of measuring cups and a ruler.
7. Explain to the youth that what they have received is one whole vegetable, and then in the storage container is a whole vegetable that has been chopped.
8. Explain to the youth that the vegetables are not to be eaten.
9. Ask the youth to examine the whole vegetable and record their observations on the *What's in a Vegetable* sheet.
10. Ask the youth to use the measuring tools to find out how much there is when a whole vegetable is chopped. Have the youth record their findings on the *What's in a Vegetable* worksheet.
11. Have each group share the amount of the chopped vegetable that they measured. On the whiteboard, chalk board, or overhead projector, record each group's vegetable type and measurements.
12. Using the measurements reported by every group, have the youth calculate the average for each vegetable type. Ask the youth to record the averages on their *What's in a Vegetable* worksheet.
13. Have the youth convert their measurements into number of servings on the *What's in a Vegetable* worksheet.
14. Have the youth go out to the garden. Ask them to use what they learned about how many servings each whole vegetable provides to make predictions about how many servings their garden plot will provide when the vegetables are fully grown. Have them record their predictions on their *Garden to Kitchen Predictions* sheet.
15. Have the youth record their predictions of total servings from their plot on the white board, chalk board, or overhead projector. When all of the predictions are reported, ask the youth to calculate the total number of servings of vegetables the whole garden will provide.

Sharing, Processing, and Generalizing

1. Have the youth share their findings.
2. Follow the lines of thinking developed by the youth through the general thoughts, observations, and questions raised by the youth as they share and compare their thoughts and ideas. If necessary, ask more targeted questions/prompts:
 - Explain how you went about deciding how much (i.e., How was it measured?) one whole vegetable provided.
 - Explain how you went about deciding how many servings your whole vegetable provided.
 - Explain how you went about predicting how many servings of vegetables your garden plot will provide.
 - Explain why you think there is a different serving size for vegetables like cucumbers and carrots than leafy greens like chard.
 - Explain your thoughts about how many servings of vegetables the entire class garden will provide.

Concept Term Discovery/Introduction

It is important that youth understand the difference between the serving sizes of a leafy green and other vegetables, in addition to the idea that many vegetables contain multiple servings in one whole vegetable or one vegetable plant. Make sure the youth discover or are introduced to the following key term: **yield**.

APPENDIX 4A: Breakfast Breakdown

Food	Portion	Serving size	Difference between portion and serving size	Number of servings in the portion
peanut butter or jam				
cereal				
juice				
breakfast patty				

Measurement Conversions

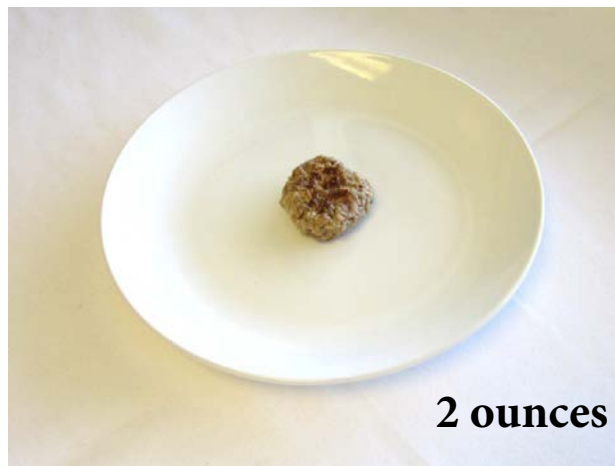
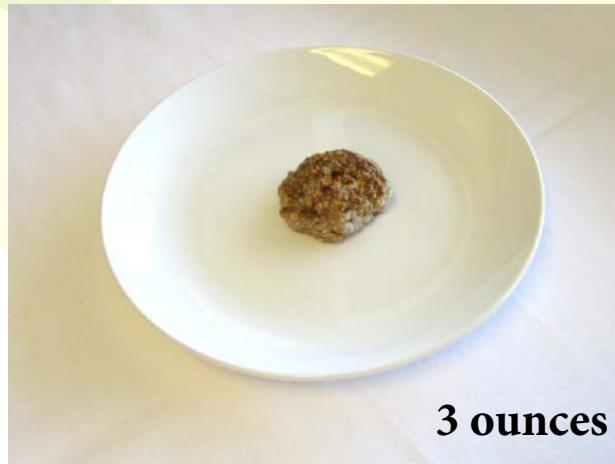
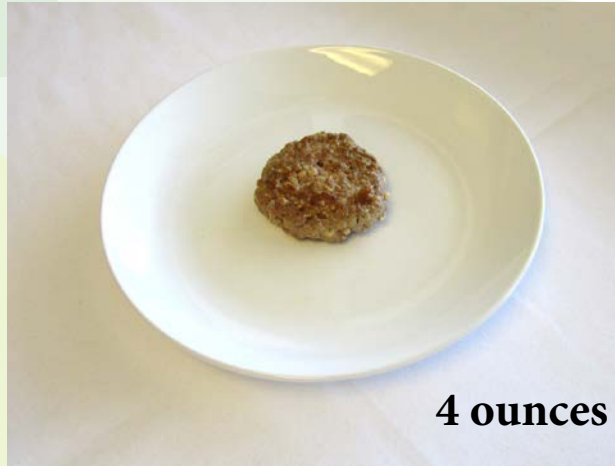
8 ounces = 1 cup

1 cup = 16 tablespoons

1 tablespoon = 3 teaspoons

28 grams = 1 ounce

APPENDIX 4B: Breakfast Patties



APPENDIX 4C: Track Your Snack

Activity: Record some of the foods that you and your family members eat and find the number of serving sizes in the portion you eat. Ask your parents to help you find measuring instruments in your kitchen.

1. Measure and record the amount you serve yourself in the “Portion” column. Be sure to write down the units of measurement that you used.
2. Find and record the serving size. This is found on the food packaging.
3. Calculate the difference between the amount you portioned for yourself and the serving size.
4. Find the number of servings in the portion by dividing the portion by the serving size.

Family member	Food	Portion (the amount you serve yourself)	Serving size (listed on the Nutrition Facts label)	Difference between portion and serving size	Number of servings in the portion

APPENDIX 4D: What's in a Vegetable?

1. What vegetable did your group receive?

2. What are your observations about the whole vegetable?

3. When you measured the chopped vegetable, what amount did you find?

	Carrot	Cucumber	Swiss chard
Find the average amount measured for each vegetable			
Serving size	1 cup	1 cup	2 cups
Number of servings from one vegetable			

APPENDIX 4E: Garden to Kitchen Predictions

1. **In your garden plot, how many servings do you think your vegetables will provide?**

2. **How many servings will the entire class garden provide?**

Module 5: MyPlate

Background Information

MyPlate is a nutrition guide developed by the United States Department of Agriculture (USDA). It illustrates the five food groups that are the building blocks for a healthy diet using a familiar image—a place setting for a meal. The five food groups included in MyPlate are fruits, vegetables, grains, protein, and dairy. MyPlate includes recommendations relative to the amounts of each food that should be consumed within each group depending on age, gender, and amount of physical activity. One of the recommendations illustrated by MyPlate is to make half of a person's plate fruits and vegetables.

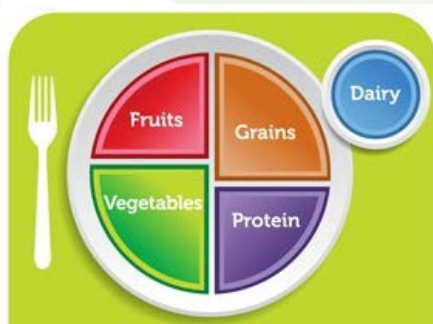
Fruit: Focus on fruits. Fruits are an important source of vitamins, minerals, and fiber. Servings of fruit can be from fresh, canned, dried, pureed, or frozen fruit, as well as 100% fruit juices. Examples of fresh fruits are oranges, apples, bananas, and strawberries. Common dried fruits include raisins, apricots, and prunes (dried plums).

Vegetables: Vary your veggies. Vegetables offer many vitamins and minerals, as well as fiber. Vegetables are divided into five subgroups, depending on the types of nutrients they contain:

1. Dark green vegetables (e.g., spinach, kale)
2. Starchy vegetables (e.g., potatoes, corn)
3. Red/orange vegetables (e.g., carrots, red bell peppers, tomatoes)
4. Beans and peas (e.g., black beans, kidney beans)
5. Other (e.g., beets, avocados, bok choy)

Servings of vegetables can come from fresh, canned, dried, pureed, or frozen, as well as 100% vegetable juice.

Grains: Make at least half your grains whole. Grains are foods made from wheat, rice, oats, cornmeal, barley, or another cereal grain. They provide nutrients such as carbohydrates, B-vitamins, iron, and dietary



fiber. Grains are organized into two groups: whole grains and refined grains. It is suggested that **whole grains** comprise at least half of the recommended serving of grains because they have more nutrients than refined grains. Whole grains include whole wheat flour, bulgur (cracked wheat), oatmeal, and brown rice. **Refined grains** are foods that have been milled to a finer texture, removing

the bran and germ. This process removes nutrients like B vitamins, iron, and fiber. Many refined grain products are enriched, meaning the vitamins and minerals are added back into the final product. However, fiber is not put back into the product. Refined grains include white flour and white rice.

Protein: Go lean with protein. Protein can come from animal and plant sources. Examples of foods rich in protein include meats, like beef and pork; poultry, like chicken and turkey; eggs; beans and peas; soy products; nuts and seeds; and seafood. In addition to the **amino acids** found in proteins, which are important to humans' diets, these foods provide iron and B vitamins.

Dairy: Get your calcium-rich foods. Dairy foods are important sources of calcium and also provide other nutrients like protein, vitamins, and minerals. Dairy foods include products made from milk that are high in calcium, including liquid milk, milk-based desserts, cheese, and yogurt. Calcium-fortified soy beverages also count as dairy foods. However, foods that are made from milk and low in calcium, like cream, butter, and cream cheese, do not count as dairy foods. MyPlate recommends that calcium-rich foods should be fat-free or low-fat (1% milk fat).

Although not included as one of the five food groups, **oils** are included in MyPlate because they are a source of important nutrients. Oils represent a type of fat that is liquid at room temperature. Oils can be found in foods like olives, avocados, nuts, and some fish.

Concepts and Vocabulary

- **Dairy:** foods that are made from milk and are high in calcium, like liquid milk, cheese, and yogurt. Calcium-fortified soy beverages count as dairy. Examples of one serving of dairy: 1 cup of milk; 1 cup of calcium-fortified soy beverage; 1½ ounces of cheese; or 1 cup of yogurt.
- **Fruits:** foods that are whole fruits, 100% fruit juice, or dried fruit. Fruits may be fresh, canned, frozen, or dried, and may be whole, cut up, or pureed. Examples of one serving of fruit: 1 cup of fresh fruit; 1 cup of 100% fruit juice; or ½ cup of dried fruit.
- **Grains:** foods made from wheat, rice, oats, cornmeal, barley, or another cereal grain. Examples of one serving of grains: 1 cup of cereal; 1 slice of bread; 1 cup of rice; or 1 cup of oats.
- **Protein foods:** foods that are good sources of protein, like meat, fish, eggs, peanut butter, nuts, and beans. Examples of one serving of protein: 1 ounce of meat; 1 ounce of fish; 1 egg; 1 tablespoon of peanut butter; ½ ounce of nuts; or ¼ cup of cooked beans.
- **Oils:** fats that are liquid at room temperature and can provide important nutrients.
- **Refined grains:** grains that have been milled, a process that removes the bran and germ of the grain kernel. This process gives grains a finer texture and improves their shelf life, but it also removes dietary fiber, iron, and many B vitamins.
- **Vegetables:** foods that are whole vegetables or 100% vegetable juice. Vegetables may be raw or cooked; fresh, frozen, canned, or dried/dehydrated; and may be whole, cut-up, or mashed. Examples of one serving of vegetables: 1 cup of raw or cooked vegetables; 1 cup of 100% vegetable juice; 2 cups of raw leafy greens; or 1 cup of cooked leafy greens.
- **Whole grains:** grains that contain the entire kernel, including the bran, germ, and endosperm.

Life Skills

Critical Thinking, Organizing, Record Keeping, Portion Sizing, Mathematically Converting, and Basic Arithmetic

Subject Links

Science, Mathematics, Nutrition, Health Education

Educational Standards Supported

Discovering Healthy Choices curriculum supports Next Generation Science Standards, Common Core State Standards, and California Nutrition Education Competencies. For specific details on standards and grade levels, please see page 9.

Activity 5.1: Classroom Activity

Getting Ready

1. Make copies of the *MyPlate Icon* (Appendix 5A), one for each group.
2. Make copies of the *Character Profiles* (Appendix 5B), one character for each group.
3. Make copies of the *Food Photos* (Appendix 5C), one set for each group.
4. Make copies of *MyPlate Recommendations* (Appendix 5D), one for each group.
5. Make copies of *MyPlate for a Day* (Appendix 5E), one for each group.
6. Organize the class into small groups of 3 to 4 youth.

Facilitator Tip: These can be the same groups that were formed in Lesson 1.1. By doing so, the youth may continue developing teamwork skills with the same group members.

7. Provide each group with a copy of the MyPlate icon to answer opening questions.
8. Provide each group with a sheet of flip chart paper and markers to answer opening questions.

Time Required

45 to 60 minutes

Suggested Groupings

Small groups of 3 to 4 youth

Materials Needed for Each Group

(*Materials provided in curriculum)

- Flip chart paper
- Markers or writing utensils
- Calculators for each group (optional)
- **MyPlate Icon* (Appendix 5A)
- **Character Profiles* (Appendix 5B)
- **Food photos* (Appendix 5C)
- **MyPlate Recommendations* (Appendix 5D)
- **MyPlate for a Day* (Appendix 5E)

Opening Questions/Prompts

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

- Based on what you observe on the handout, explain what you think the purpose of this illustration might be.
- Explain how this might or might not relate to the foods you eat.

Procedure (Experiencing)

1. Provide each group with one character profile. Ask the youth to read about their character.
2. Provide each group a set of the *Food Photos*. Ask the youth to look through them to become familiar with the foods, paying attention to the food groups and what counts as one serving from each food group.
3. Provide each group with the *MyPlate Daily Recommendations* handout. Explain that the chart includes recommendations for different ages, genders, and physical activity levels. Ask the youth to use this chart to determine the recommendations for their character.
4. Provide each group with the *MyPlate for a Day* handout. Ask the youth to use the *Food Photos* as a guide to select the foods they want to choose for each meal. Ask them to record the food and the number of servings needed to meet the MyPlate recommendations for their character on the *MyPlate for a Day* handout.

Facilitator Tip: Youth may need to be reminded that not all five groups need to be represented in each meal; however, it is important to meet the recommendations of all five food groups in one day. Youth may also choose foods that are not pictured, but should use the explanation of what counts as a serving in each food group when choosing alternate foods.

Sharing, Processing, and Generalizing

1. Have the groups present their character profile and the foods and number of servings they chose for each meal on the *MyPlate for a Day* chart.
2. Follow the groups' lines of thinking developed through general thoughts, observations, and questions, and if necessary, ask more targeted questions/prompts:
 - Explain what you noticed about the different foods that count as a serving in each of the food groups.
 - Explain how you went about choosing the foods to meet the MyPlate daily recommendation.
 - Explain what you noticed about your character's physical activity level and the MyPlate recommendations for him/her.
 - Explain why a person's physical activity level might be important in considering how much food to eat.
 - Explain why a person's gender or age might make a difference in choosing how much food to eat.
 - Explain what you think about how the recommendations might vary for you compared with the character profile.

Concept Term Discovery/Introduction

Make sure that youth understand the importance of the different MyPlate recommendations for every food group based on age, gender, and physical activity level. Youth should also understand that in each food group there are different amounts of foods that count as one serving. Make sure that the key messages of MyPlate are either discovered by the youth or introduced to them. These include

- making half your plate fruits and veggies
- making half your grains whole
- going lean with protein
- switching to fat-free or low-fat (1%) milk

Additionally, make certain that vocabulary terms are either discovered by the youth or introduced to them: **fruits, vegetables, grains, protein foods, dairy, refined grains, and whole grains.**

Activity 5.2: Classroom Concept Application

Getting Ready

1. Make copies of *MyPlate Recommendations* (Appendix 5D), one for each youth.
2. Make copies of *MyPlate for a Day* (Appendix 5E), one for each youth.

Time

15 to 20 minutes

Facilitator Tip: this can be done during classroom time, or as a homework assignment.

Materials Needed

(*Material provided in the curriculum)

- **MyPlate Recommendations* (Appendix 5D)
- **MyPlate for a Day* (Appendix 5E)

Procedure (Experiencing)

1. Provide a copy of *MyPlate Recommendations* and *MyPlate for a Day* handouts to every youth.
2. Ask the youth to complete the *MyPlate for a Day* chart for themselves, using the *MyPlate Recommendations*.

Sharing, Processing, and Generalizing

1. When the youth have returned with the completed *MyPlate for a Day* chart, have the youth share them.
2. Follow the youths' lines of thinking through general thoughts, observations, and questions, and if necessary, ask a more targeted question/prompt:
 - Explain how your recommendations differed from those for the character profile in the previous activity.

Activity 5.3: Garden Concept Application

Getting Ready

1. Make a copy of the *Vegetable Comparison Chart* (Appendix 5F), one for each youth.
2. Purchase or harvest vegetables from each of the five MyPlate vegetable subgroups. Recommended foods are provided in *Examples of Vegetables* (Appendix 5G). Enough vegetables are needed for each group of youth to have one whole vegetable from each MyPlate subgroup, and each youth to have one sample from every MyPlate subgroup.
3. Prepare the whole vegetables by washing them.
4. Prepare the vegetable samples in each MyPlate subgroup by cutting washing and cutting them into bite-size pieces, if necessary. Place the samples into small paper cups, one for each youth.

Facilitator Tip: In order to reinforce the connection with the garden, choose vegetables that are growing in the garden.

5. Organize the class into small groups of four youth.

Facilitator Tip: These can be the same groups that were formed in Lesson 1, Activity 1. By doing so, the youth may continue developing teamwork skills with the same group members.

6. Provide each group with a sheet of flip chart paper and markers to answer opening questions.

Time Required

60 to 75 minutes

Suggested Groupings

Small groups of 3 to 4 youth

Materials Needed

(*Materials provided in curriculum)

- Flip chart paper
- Markers or writing utensils
- Small paper cups
- Napkins
- **MyPlate Vegetable Comparison Chart* (Appendix 5F)
- Whole vegetables from each MyPlate subgroup
- Vegetable samples for tasting from each MyPlate subgroup

Opening Questions/Prompts

Ask youth to respond to each question below by sharing their ideas on flip chart paper.

- Name some vegetables that you eat. Explain why you like them.
- Explain what you know about the different nutrients found in different vegetables.
- Explain some of the similarities and differences you notice about the different vegetables.

Procedure (Experiencing)

1. Provide each youth with the *MyPlate Vegetable Comparison* chart. Explain that the youth need to fill it out during both the observation and the tasting parts of the activity.

Facilitator Tip: Youth may need some prompting to describe each of the sensory questions. Visually, they may describe color, size, and texture. From the standpoint of touch, they may describe the texture, weight, temperature, and softness. For its smell, they can describe the character of the smell, or compare it to something familiar to them. Youth may even use their sense of hearing. They can tap the vegetable with their index finger and describe the volume or pitch. In describing the taste of the vegetable, they can describe the taste as well as texture of the vegetable in their mouth.

2. Provide each group with one whole vegetable from the **Dark Green Vegetables** group. Ask each youth to observe the vegetable using sight, sound, touch, and smell. Then ask them to discuss it within their groups, and record their thoughts on the *MyPlate Vegetables Comparison* chart.
3. Give each youth a bite-sized sample from the **Dark Green Vegetables** group. Have each youth taste the vegetable. Ask them to discuss their observations within their groups, and record their thoughts on the *MyPlate Vegetables Comparison* chart.
4. Provide each group with one whole vegetable from the **Beans and Peas** group. Ask each youth to observe the vegetable using sight, sound, touch, and smell. Then ask them to discuss it within their groups, and record their thoughts on the *MyPlate Vegetables Comparison* chart.
5. Give each youth a bite-sized sample from the **Beans and Peas** group. Have each youth taste the vegetable. Ask them to discuss their observations within their groups, and record their thoughts on the *MyPlate Vegetables Comparison* chart.
6. Provide each group with one whole vegetable from the **Starchy Vegetables** group. Ask each youth to observe the vegetable using sight, sound, touch, and smell. Then ask them to discuss it within their groups, and record their thoughts on the *MyPlate Vegetables Comparison* chart.
7. Give each youth a bite-sized sample from the **Starchy Vegetables** group. Have each youth taste the vegetable. Ask them to discuss their observations within their groups, and record their thoughts on the *MyPlate Vegetables Comparison* chart.
8. Provide each group with one whole vegetable from the **Red and Orange Vegetables** group. Ask each youth to observe the vegetable using sight, sound, touch, and smell. Then ask them to discuss it within their groups, and record their thoughts on the *MyPlate Vegetables Comparison* chart.
9. Give each youth a bite-sized sample from the **Red and Orange Vegetables** group. Have each youth taste the vegetable. Ask them to discuss their observations within their groups, and record their thoughts on the *MyPlate Vegetables Comparison* chart.
10. Provide each group with one whole vegetable from the **Other Vegetables** group. Ask each youth to observe the vegetable using sight, sound, touch, and smell. Then ask them to discuss it within their groups, and record their thoughts on the *MyPlate Vegetables Comparison* chart.
11. Give each youth a bite-sized sample from the **Other Vegetables** group. Have each youth taste the vegetable. Ask them to discuss their observations within their groups, and record their thoughts on the *MyPlate Vegetables Comparison* chart.

Sharing, Processing, and Generalizing

1. Have the youth share their observations from their *MyPlate Vegetables Comparison* chart.
2. Follow the lines of thinking developed through general thoughts, observations, and questions raised by the youth as they share and compare their thoughts and ideas relative to the vegetable food groups and MyPlate recommendations. If needed, use more targeted questions/prompts:
 - Explain what you noticed about the vegetables you just observed and tasted.
 - Explain how you went about making the observations of each vegetable.
 - Describe your reaction to the taste of each vegetable. Did you like it? Why or why not?
 - Explain why you think MyPlate categorizes these vegetables in different groups.
 - Discuss some other vegetables that may go in the different groups.
 - According to MyPlate, half of our plate should be fruits and vegetables. Discuss what vegetables you might choose to eat to fulfill your MyPlate recommendation.

Concept Term Discovery/Introduction

Make sure that youth understand that there are five different MyPlate vegetable subgroups, which are categorized based on the different nutrients. They should understand that it is recommended that we consume vegetables from all five subcategories. They should also learn the types of vegetables that belong in each category:

- dark green vegetables (e.g., broccoli, kale, swiss chard, romaine lettuce)
- beans and peas (e.g., black beans, garbanzo beans, lentils, split peas)
- starchy vegetables (e.g., potatoes, corn)
- red and orange vegetables (e.g., red bell peppers, sweet potatoes, carrots)
- Other vegetables (e.g., cauliflower, beets, green beans)

Activity 5.4: Goal Setting

Getting Ready

1. Make copies of *MyPlate Recommendations* (Appendix 5D), one for each youth.
2. Make copies of *MyPlate Goal Setting* (Appendix 5H), one for each youth.

Materials Needed

(*Material provided in the curriculum)

- **MyPlate Recommendations* (Appendix 5D)
- **MyPlate Goal Setting* (Appendix 5H)

Procedure (Experiencing)

1. Provide a copy of *MyPlate Goal Setting* handouts to every youth.
2. Ask the youth to bring home this lesson's goal-setting worksheet and complete it with a family member. They will answer the following questions:
 - How many servings of vegetables are recommended for you to eat every day?
 - How many servings of vegetables are recommended for your family members to eat every day?
 - Describe some things you can do to help meet your MyPlate vegetable recommendations.
 - Describe some things your family members can do to help meet the MyPlate vegetable recommendations.
3. When the youth return with the completed worksheet, ask them to share the goals that they set for eating their recommended amounts of vegetables.

Activity 5.5: Home Concept Application

Getting Ready

1. Make copies of *Growing a Garden for MyPlate* (Appendix 5I), enough for each youth.

Materials Needed

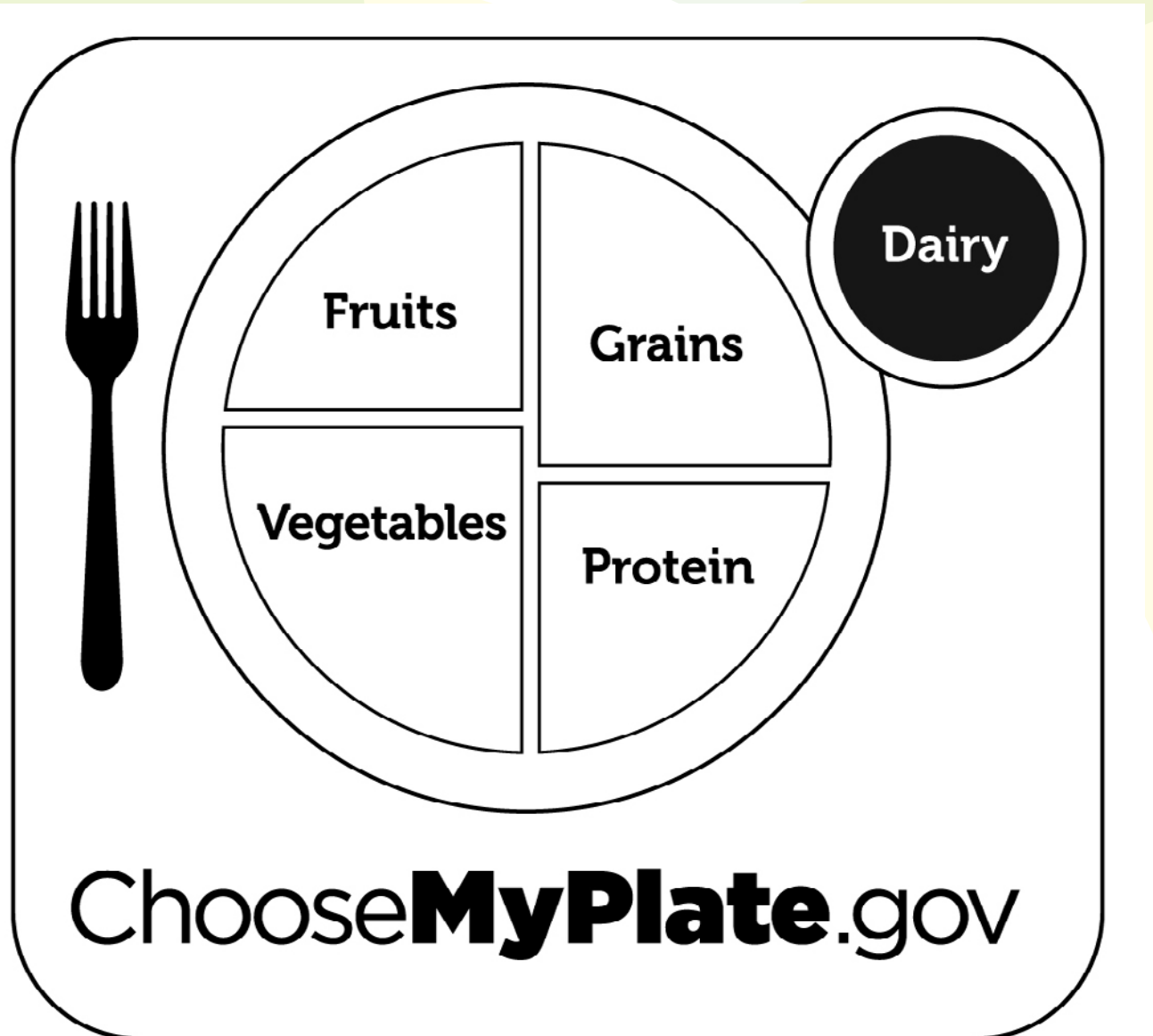
(*Material provided in the curriculum)

- **MyPlate Garden* (Appendix 5I)

Procedure (Experiencing)

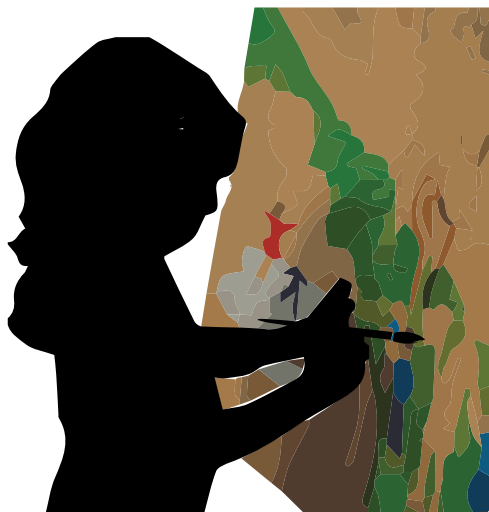
1. Provide a copy of the *Growing a Garden for MyPlate* handouts to every youth.
2. Explain to the youth this is an optional home project. Tell them they can work with their families to create a MyPlate Garden at home. Explain that if they have space to grow multiple plants, to try and grow one vegetable from each MyPlate subcategory. If they have limited space, try growing one vegetable in a container.

APPENDIX 5A: My Plate Icon



APPENDIX 5B: Character Profiles**Hi, I'm Lily!**

6-year-old Lily is about to go into the 1st grade. She takes ballet classes for 30 minutes, three times a week. She loves the color pink and likes to twirl in her pink tutu. Right when she gets home from practice, Lily likes singing and dancing to her favorite songs.

**Hi, I'm Karla!**

Karla is 6 years old. Her favorite things to do are draw, paint, and color. She does not like to play sports because she always seems to get hurt. Karla wants to be a painter when she grows up.

APPENDIX 5B: Character Profiles



Hi, I'm David!

14-year-old David is growing fast. In just one year, David was able to grow 2 inches taller. David loves baseball. He plays baseball for at least 1 hour, five days a week. When he is not playing baseball, David also loves to ride his bicycle with his friends.



Hi, I'm Alexander!

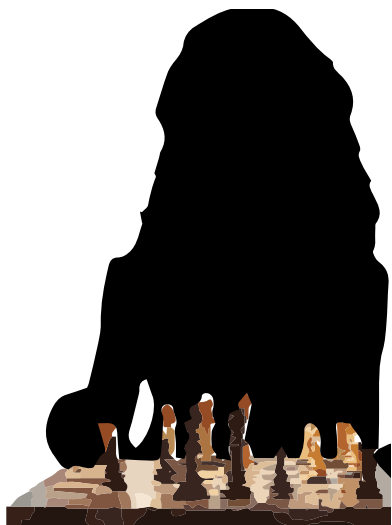
Alexander is 14 years old and is in the 8th grade. He learned to read when he was 4 years old. Ever since then, he hasn't been able to put a book down. His favorite books are comic books. He reads them whenever he can.

APPENDIX 5B: Character Profiles



Hi, I'm Louisa!

Louisa is 23 years old and is a college student. She plays volleyball at the college and that is how she met a lot of her friends. Recently she decided to coach volleyball at an elementary school. Louisa also runs 2 miles at 7:00 am every morning, five days a week. She also plays volleyball with her friends three times a week, and games can last 2 to 3 hours.



Hi, I'm Olivia!

Olivia, 23 years old, has never been athletic. She loves to read and watch TV. Olivia's favorite book of all time is *James and the Giant Peach*. She is a secretary at Dr. Stone's dental office. She and her husband like to play board games together.

APPENDIX 5B: Character Profiles



Hi, I'm **Joseph!**

30-year-old Joseph is a successful manager at an accounting firm. His job is very demanding, and he typically works starting at 7:00 am, and is usually not home until 8:00 pm. When he gets home from work, he is so exhausted that all he wants to do is relax on the couch and then go to sleep.



Hi, I'm **Anthony!**

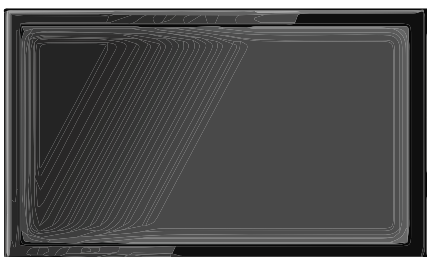
Filip, 30 years old, has been playing soccer since he was seven. He plays professional soccer and is one of the best players on his team. He practices 6 days a week for five hours a day. When he doesn't have practice, he runs at least 5 miles per day.

APPENDIX 5B: Character Profiles



Hi, I'm Mrs. Strutter!

45-year-old Mrs. Strutter is a mother of two children that are in middle school. While they are at school, she does errands, cooks and cleans her home. Her favorite thing to do is to tend to her well-kept, vegetable garden. She spends at least 30 minutes in her garden every day. Mrs. Strutter tries to stay physically active and eat healthfully.

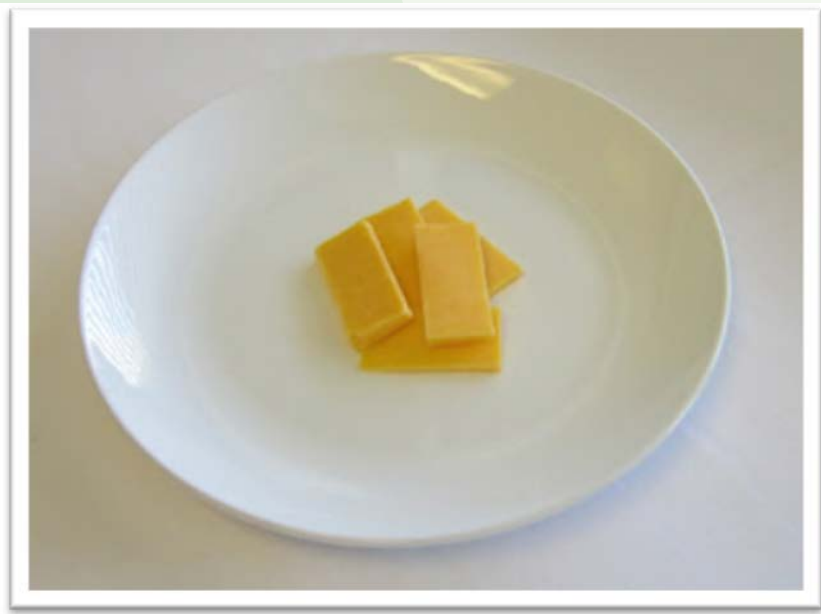


Hi, I'm Ms. Rodriguez!

Ms. Rodriguez is 45 years old and is a math teacher at a high school. She lives with her cat named Lucy. In the evenings after she is done grading her students' math homework, she likes to watch movies. One of Ms. Rodriguez's favorite hobbies is to make scrapbooks with her favorite photos.



APPENDIX 5C: Food Photos



Cheddar Cheese

1.5 ounces

Dairy

1½ ounces of cheese counts as
1 cup of dairy



Yogurt

1 cup

Dairy

1 cup of yogurt counts as
1 cup of dairy

APPENDIX 5C: Food Photos



1% Milk

1 cup

Dairy

1 cup of milk counts as
1 cup of dairy



White Rice

½ cup

Grains

½ cup of rice counts as
1 ounce of grains

APPENDIX 5C: Food Photos

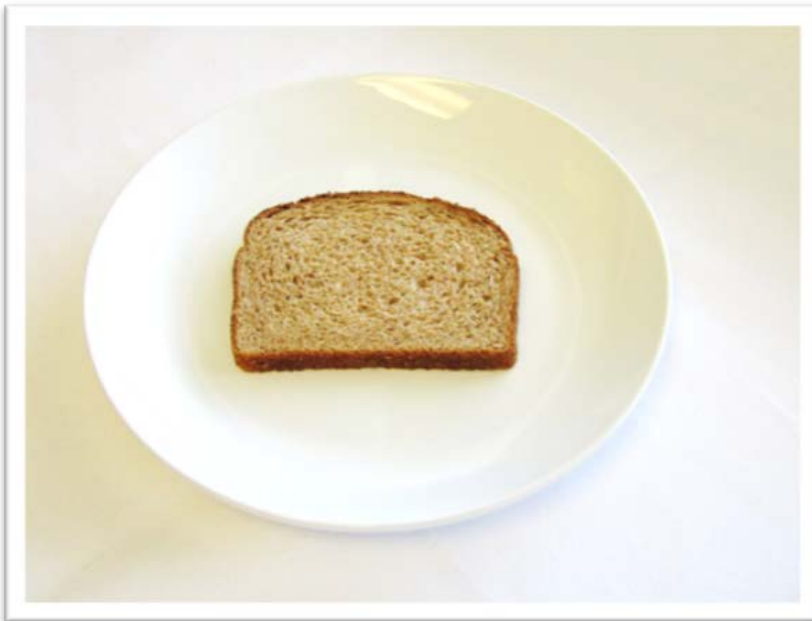


Cereal

1 cup

Grains

1 cup of cereal counts
as 1 ounce of grains



**Whole Wheat
Bread**

1 slice

Grains

1 slice of whole wheat bread
counts as 1 ounce of grains

APPENDIX 5C: Food Photos



Raw Spinach

2 cups

Vegetables

2 cups of raw leafy greens
count as 1 cup of vegetables



Cooked Spinach

1 cup

Vegetables

1 cup of cooked leafy greens
counts as 1 cup of vegetables

APPENDIX 5C: Food Photos



Corn

1 cup

Vegetables

1 cup of corn counts as
1 cup of vegetables



**Turkey Deli
Meat**

1 ounce

Protein

1 ounce of meat or fish counts
as 1 ounce of protein

APPENDIX 5C: Food Photos



Egg
1 egg

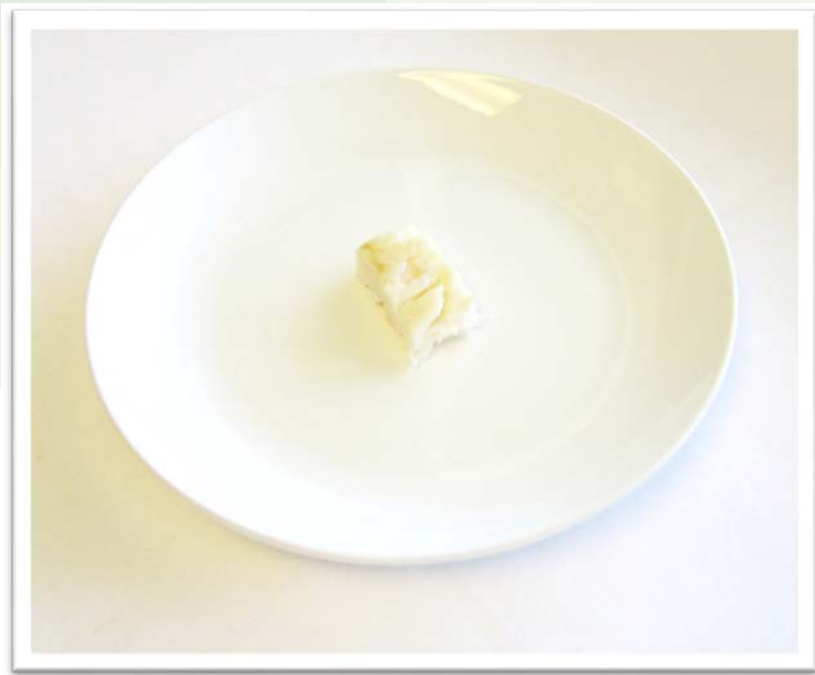
Protein
1 egg counts as
1 ounce of protein



Black Beans
 $\frac{1}{4}$ cup

Protein
 $\frac{1}{4}$ cup of beans counts as
1 ounce of protein

APPENDIX 5C: Food Photos



Fish

1 ounce

Protein

1 ounce of meat or fish counts as 1 ounce of protein



Mixed Nuts

½ ounce

Protein

½ ounce of nuts counts as 1 ounce of protein

APPENDIX 5C: Food Photos



Peanut Butter

1 tablespoon

Protein

1 tablespoon of peanut butter counts as 1 ounce of protein



100% Orange Juice

1 cup

Fruit

1 cup of 100% fruit juice counts as 1 cup of fruit

APPENDIX 5C: Food Photos



Raisins

½ cup

Fruit

½ cup of dried fruit counts as
1 cup of fruit



Strawberries

1 cup

Fruit

1 cup of fresh fruit counts as 1
cup of fruit

APPENDIX 5D: MyPlate Recommendations

*Levels of Physical Activity

Moderate physical activity: walking briskly, hiking, gardening/yard work, and dancing.

Vigorous physical activity: running/jogging, swimming laps, and aerobics.



Less than 30 minutes of moderate physical activity* per day:

Gender and age groups	Fruits	Vegetables	Grains	Protein	Dairy
Children: 2–3 years	1 cup	1 cup	3 ounce equivalent	2 ounce equivalent	2 cups
4–8 years	1–1 ½ cups	1½ cups	5 ounce equivalent	4 ounce equivalent	2½ cups
Girls: 9–13 years	1½ cups	2 cups	5 ounce equivalent	5 ounce equivalent	3 cups
14–18 years	1½ cups	2½ cups	6 ounce equivalent	5 ounce equivalent	3 cups
Boys: 9–13 years	1½ cups	2½ cups	6 ounce equivalent	5 ounce equivalent	3 cups
14–18 years	2 cups	3 cups	8 ounce equivalent	6½ ounce equivalent	3 cups
Women: 19–30 years	2 cups	2½ cups	6 ounce equivalent	5½ ounce equivalent	3 cups
31–50 years	1½ cups	2½ cups	6 ounce equivalent	5 ounce equivalent	3 cups
51+ years	1½ cups	2 cups	5 ounce equivalent	5 ounce equivalent	3 cups
Men: 19–30 years	2 cups	3 cups	8 ounce equivalent	6½ ounce equivalent	3 cups
31–50 years	2 cups	3 cups	7 ounce equivalent	6 ounce equivalent	3 cups
51+ years	2 cups	2½ cups	6 ounce equivalent	5½ ounce equivalent	3 cups

APPENDIX 5D: MyPlate Recommendations

30 to 60 minutes of moderate or vigorous physical activity* per day

Age and gender group	Fruits	Vegetables	Grains	Protein	Dairy
Children: 2–3 years	1 cup	1 cup	3 ounce equivalent	2 ounce equivalent	2 cups
4–8 years	1½ cups	2 cups	5 ounce equivalent	5 ounce equivalent	3 cups
Girls: 9–13 years	1½ cups	2½ cups	6 ounce equivalent	5 ounce equivalent	3 cups
14–18 years	2 cups	2½ cups	6 ounce equivalent	5½ ounce equivalent	3 cups
Boys: 9–13 years	2 cups	2½ cups	6 ounce equivalent	5½ ounce equivalent	3 cups
14–18 years	2½ cups	3½ cups	10 ounce equivalent	7 ounce equivalent	3 cups
Women: 19–30 years	2 cups	3 cups	7 ounce equivalent	6 ounce equivalent	3 cups
31–50 years	2 cups	2½ cups	6 ounce equivalent	5½ ounce equivalent	3 cups
51+ years	1½ cups	2½ cups	6 ounce equivalent	5 ounce equivalent	3 cups
Men: 19–30 years	2½ cups	3½ cups	10 ounce equivalent	7 ounce equivalent	3 cups
31–50 years	2 cups	3½ cups	9 ounce equivalent	6½ ounce equivalent	3 cups
51+ years	2 cups	3 cups	7 ounce equivalent	6 ounce equivalent	3 cups

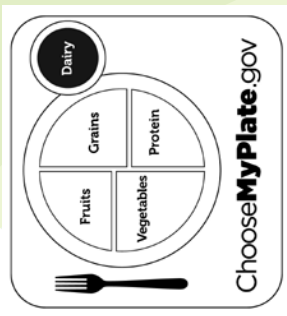
More than 60 minutes of moderate or vigorous physical activity* per day

Age and Gender Group	Fruits	Vegetables	Grains	Protein	Dairy
Children: 2–3 years	1 cup	1 cup	3 ounce equivalent	2 ounce equivalent	2 cups
4–8 years	1½ cups	2½ cups	6 ounce equivalent	5 ounce equivalent	3 cups
Girls: 9–13 years	2 cups	2½ cups	6 ounce equivalent	5½ ounce equivalent	3 cups
14–18 years	2 cups	3 cups	8 ounce equivalent	6½ ounce equivalent	3 cups
Boys: 9–13 years	2 cups	3 cups	7 ounce equivalent	6 ounce equivalent	3 cups
14–18 years	2½ cups	4 cups	10 ounce equivalent	7 ounce equivalent	3 cups
Women: 19–30 years	2 cups	3 cups	8 ounce equivalent	6½ ounce equivalent	3 cups
31–50 years	2 cups	3 cups	7 ounce equivalent	6 ounce equivalent	3 cups
51+ years	2 cups	2½ cups	6 ounce equivalent	5½ ounce equivalent	3 cups
Men: 19–30 years	2½ cups	4 cups	10 ounce equivalent	7 ounce equivalent	3 cups
31–50 years	2½ cups	3½ cups	10 ounce equivalent	7 ounce equivalent	3 cups
51+ years	2 cups	3½ cups	9 ounce equivalent	6½ ounce equivalent	3 cups

5E

APPENDIX 5E: MyPlate for a Day

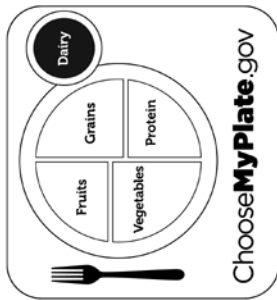
Who is this profile for? _____
 How many servings of each of the food groups does MyPlate recommend for this person for the whole day? _____Fruits, _____Vegetables, _____Grains, _____Protein, _____Dairy



	Breakfast	Lunch	Dinner	Snack	Daily total
FRUITS					
VEGETABLES					
GRAINS					
PROTEIN					
DAIRY					

APPENDIX 5F: MyPlate Vegetables Comparison

5F



Instructions: Answer the following questions for all the different vegetables during both the observation and tasting parts of the activity.

Sensory questions	Dark green vegetables	Beans and peas	Starchy vegetables	Red and orange vegetables	Other vegetables
What does it look like?					
How does it feel?					
What does it smell like?					
What kinds of sounds does it make when you shake it?					
Describe how it tastes.					

APPENDIX 5G: Recommended Vegetables

Example Vegetables

Dark green vegetables	Beans and Peas	Starchy vegetables	Red and orange vegetables	Other vegetables
bok choy	black beans	cassava	acorn squash	artichokes
broccoli	black-eyed peas	corn	butternut squash	asparagus
collard greens	(mature, dry)	fresh cowpeas, field peas,	carrots	avocado
dark green lettuce	garbanzo beans	black-eyed peas	hubbard squash	bean sprouts
kale	(chickpeas)	(not dry)	pumpkin	beets
mesclun	kidney beans	green bananas	red peppers	brussels sprouts
mustard greens	lentils	green peas	sweet potatoes	cabbage
romaine lettuce	navy beans	green lima beans	tomatoes	cauliflower
spinach	pinto beans	plantains	tomato juice	celery
Swiss chard	soy beans	potatoes		cucumbers
turnip greens	split peas	taro		eggplant
watercress	white beans	water chestnuts		green beans
				green peppers
				iceberg (head) lettuce
				mushrooms
				okra
				onions
				turnips
				wax beans
				zucchini

APPENDIX 5H: Goal Setting

MyPlate Goal Setting

How many servings of vegetables are recommended for you to eat every day?

How many servings of vegetables are recommended for your family members to eat every day?

What are some things you can do to meet your vegetable recommendation?

What can your family members do to meet their vegetable recommendation?

APPENDIX 5I: Growing a Garden for MyPlate

Growing a Garden for MyPlate

Plant a home garden with vegetables from different MyPlate subcategories:

1. Dark green vegetables (examples: spinach, kale, Swiss chard)
2. Starchy vegetables (examples: potatoes, corn)
3. Red/orange vegetables (examples: carrots, tomatoes)
4. Beans and peas (examples: black beans, kidney beans)
5. Other vegetables (examples: beets, cauliflower, bok choy)

A home garden can be planted in the ground, raised beds, or containers. If you have limited space, start with just one vegetable in a small container. Most vegetables require full sun, with at least 6–8 hours of sunlight.

These are some vegetables that are recommended for planting in cool weather seasons :

- **Spinach**
Sow seeds $\frac{1}{2}$ inch to 1 inch deep, covering lightly with soil. Sow about 12 seeds per foot of row or container.
- **Snow peas**
Plant 1 inch deep (or deeper if soil is dry) and 2 inches apart.
- **Potatoes**
Potatoes can be started by seed or by planting a small whole potato or small pieces of a whole potato, with at least two eyes per piece. If you are cutting a potato into pieces for planting, do so a 1–2 days before you plant them. This will give them the chance to form a protective layer for moisture retention and resistance to rot. Plant potatoes 1 foot apart, 4 inches deep, with the eye of the potato facing up. Make sure potatoes are planted in well-drained, loose soil.
- **Carrots**
Plant seeds 3–4 inches apart in rows. Rows should be at least a foot apart.
- **Beets**
Plant seeds $\frac{1}{2}$ inch deep and 1–2 inches apart.

More Resources for Building a Home Garden

- University of California Agriculture and Natural Resources Garden website, <http://ucanr.org/sites/gardenweb/>.
- California Master Gardeners website, <http://camastergardeners.ucdavis.edu/>.
- Sacramento Master Gardeners – How to Grow Vegetables website, http://ucanr.org/sites/sacmg/Growing_Vegetables/.

Module 6: Food Labels

Background Information

The United States Food and Drug Administration requires most packaged foods and beverages to have a **Nutrition Facts** label to help consumers make informed choices about the foods they eat.

Serving size is the first thing listed at the top of the Nutrition Facts label. This is a standard reference amount that helps consumers determine the nutrients in the amount they choose to eat. Each type of food has a standard serving size, and the nutrients listed on the label are based on that serving. Next, the label displays the amount of **calories** in the serving and how many of those calories come from fat.

The amounts of nutrients are listed individually and are represented by weight in grams (g) and micrograms (mcg), and **percent (%) Daily Value**. The percent daily value represents the percentage of the recommended daily amount of a nutrient that is provided in one serving of a food. The percent daily value is based on a 2,000 calorie per day diet. Percent daily value can help us decide if a food is high or low in a nutrient; 5% or less is low and 20% or more is high. If your daily caloric needs are greater or less than 2,000, your percent daily value may be different than what is listed on the Nutrition Facts label.

The first nutrient listed is **total fat**, followed by two subgroups of **fats**: **saturated fat** and **trans fat**. It is recommended that we choose foods that are low in saturated fat and avoid foods with trans fat (Dietary Guidelines for Americans, 2015–2020). **Cholesterol** is listed next. The Dietary Guidelines for Americans recommends limiting cholesterol as part of a healthy

Nutrition Facts	
8 servings per box	
Serving Size	6 crackers (28g)
Amount per serving	
Calories	120
% Daily Value*	
Total Fat 4g	5%
Saturated Fat 1g	3%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 197mg	9%
Total Carbohydrate 19g	7%
Dietary Fiber 3g	10%
Total Sugars 0g	
Includes 0g Added Sugars	0%
Protein 3g	
Vitamin D 0mcg	0%
Calcium 10mg	1%
Iron 1mg	6%
Potassium 27mg	1%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

eating pattern because foods with higher amounts of cholesterol also have high amounts of saturated fat. Following cholesterol is **sodium**, which should be limited to 2,300 mg per day.

Total carbohydrate represents starches, sugars, and fiber. The two subgroups of carbohydrates listed on food labels are **dietary fiber**, **sugars**, and **added sugars**. It is recommended that we choose foods that are high in fiber. Sugars represent all types of sugar in the food, including those that are naturally in foods (e.g., sugars found in fruit and milk) and those that are added. **Added sugars** are sugars and syrups that are added during preparation of a food (i.e., brown sugar, corn sweetener, corn syrup, dextrose, fructose, glucose, high-fructose corn syrup, honey, invert sugar, lactose, malt syrup, maltose, molasses, raw sugar, sucrose, trehalose, and turbinado sugar). It is recommended that we reduce our

intake of foods that are high in added sugars and limit the amount of added sugars to less than 10% of calories per day. Listed below sugars is **protein**, which is listed in grams but not in percent daily value.

Vitamins and **minerals** are listed together. The four vitamins and minerals shown on food labels are vitamin D, calcium, iron, and potassium. A healthy eating pattern includes foods that are high in these vitamins and minerals.

Ingredients are usually displayed near the Nutrition Facts Label. These ingredients are listed in order from greatest amount to the lowest amount. The ingredients list can be used to avoid foods that are high in added sugars.

Concepts and Vocabulary

- **Added sugars:** sugars and syrups that are added to foods or beverages when they are processed or prepared. This does not include natural sugars found in milk and fruits.
- **Calories:** a measurement of the amount of energy that a food provides.
- **Cholesterol:** a substance that is used by the body for structural and biological functions. Our bodies make cholesterol so we do not need to obtain it from our food.
- **Dietary fiber:** a nutrient that helps our digestive system function properly.
- **Ingredients:** a list located near the Nutrition Facts Label that lists the food ingredients in order from largest to smallest amounts.
- **Minerals:** elements that are needed for growth, development, and maintenance of the body's tissues, like iron and calcium.
- **Percent (%) daily value:** the percent of the recommended daily amount of a nutrient that the food provides based on a 2,000 calorie per day diet.
- **Protein:** a nutrient that helps to build and repair tissues and organs like muscles and the heart; proteins are also metabolized for energy.
- **Serving size:** standard reference amounts that are set by the United States Food and Drug Administration (FDA).
- **Sodium:** a nutrient that is important for many biological functions but is only needed in small amounts.
- **Total carbohydrate:** the amount of carbohydrates in one serving, including starches, sugars, and dietary fiber.
- **Total fat:** the amount of fat in one serving, including unsaturated (found in oils), saturated, and *trans* fats (found in solid fats).
- **Trans fat:** this is a solid fat that is formed through a manufacturing process that converts oil into solid fat. The manufactured *trans* fat has been linked to heart disease and is recommended to be limited in the diet.
- **Sugars:** this category represents all types of sugar in one serving, including those that are naturally in food and those that are added sugars.
- **Saturated fat:** this is a solid fat that is made by our bodies, so we do not need to consume it. It is recommended that the amount of saturated fat eaten is limited to less than 10% of total caloric intake per day.
- **Vitamins:** organic molecules needed for growth, development, and maintenance of the body's tissues.

Life Skills

Accepting Differences, Critical Thinking, Decision Making, Goal Setting, Healthy Lifestyle Choices, Teamwork, Wise Use of Resources

Subject Links

Nutrition, Health

Educational Standards Supported

Discovering Healthy Choices curriculum supports Next Generation Science Standards, Common Core State Standards, and California Nutrition Education Competencies. For specific details on standards and grade levels, please see page 9.

Activity 6.1: Classroom Activity

Getting Ready

1. Make copies of the *Food Labels* (Appendix 6A), one set for each group.
2. Make copies of the *Food Label Key* (Appendix 6B), one for each group.
3. Organize the class into small groups of 3 to 4 youth.

Facilitator Tip: these can be the same groups that were formed in Lesson 1, Activity 1. By doing so, the youth may continue developing teamwork skills with the same group members.

4. Provide each group a sheet of flip chart paper and markers to answer opening questions.

Time Required

60 to 75 minutes

Suggested Groupings

Small groups of 3 to 4 youth

Materials Needed

(*Materials provided in curriculum)

- Flip chart paper
- Markers or writing utensils
- **Food Labels* (Appendix 6A)
- **Food Label Key* (Appendix 6B)

Opening Questions/Prompts

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

1. Explain what you know about the nutrients we need from the foods we eat.
2. Explain what you know about Nutrition Facts labels provided on the packaging of foods we purchase.

Procedure (Experiencing)

1. Provide youth groups with one set of the *Food Labels* handouts representing each food group.
2. Ask each group of youth to review each set of food labels carefully. Ask the youth to choose which food (based on the Nutrition Facts label) within each food group set they think would be the healthiest choice.
3. Allow enough time for the youth to complete their choices. After the youth have completed their choices, ask them to explain their reasoning.
4. Provide each youth group with a copy of the *Food Label Key*. Explain to the youth that the key reveals the specific food items that are represented by each label. Now that they know the specific foods to which each label belongs, they may elect to make a different choice. However, if they choose to select a different food, they must explain why they changed their minds. Allow enough time for the youth to look at the *Food Label Key* and discuss their choices.

Sharing, Processing, and Generalizing

1. Have the youth share the choices they made based on the food label and how they went about making their choices.
2. Follow the lines of thinking developed through general thoughts, observations, and questions raised by the youth as they share and compare their thoughts and ideas regarding which foods they chose. If needed, use more targeted questions/prompts:
 - Explain how you went about making the choice about the healthiest foods in each category based on the food labels.
 - Explain what items on the food labels you think are the healthiest and which ones you believe should be limited in one's diet.
 - Explain how reading food labels might be helpful for making healthy choices.

Concept and Term Discovery/Introduction

Make sure that youth understand the importance of using the reliable nutrition information provided in food labels to help us make healthy choices. Also ensure they understand they can use food labels to choose foods that are high in fiber and calcium, and foods that are low in saturated fat, trans fat, and sodium. Additionally, make sure that key vocabulary terms are discovered by the youth or introduced to them: **calories, dietary fiber, minerals, percent (%) daily value, protein, serving size, sodium, total carbohydrate, total fat, sugars, added sugars, and vitamins.**

Activity 6.2: Home Concept Application

Getting Ready

1. Make copies of the *Food Labels at the Market* handout (Appendix 6C), enough for each youth.

Time Required

10 to 15 minutes

Materials Needed

(* Materials provided in curriculum)

- **Food Labels at the Market* (Appendix 6C)

Procedure (Experiencing)

1. Provide a copy of the *Food Labels at the Market* handout to each youth.
2. Ask the youth to take the assignment home and complete it with their family. Tell them to go to a grocery store or market with their family and to compare food labels of similar items and determine which they would choose as the healthier option. One excellent example would be to look at food labels of different types of breakfast cereals.
3. Ask them to record their thoughts, observations, and choice on the handout.

Sharing, Processing, and Generalizing

1. When the youth have returned with the completed worksheet, ask them to share their findings and experience at the grocery store.
2. Follow the lines of thinking developed through general thoughts, observations, and questions raised by the youth as they share and compare their thoughts and ideas regarding the food labels they investigated. If necessary, use more targeted questions:
 - Explain how you went about comparing the different food labels and making a choice for which was the healthiest.
 - Explain how looking at food labels in the grocery store might impact choices of foods your family purchases.

Activity 6.3: Garden Concept Application

Getting Ready

- Make copies of the *Nutrient Information* handout (Appendix 6D), enough for each group.
- Set up a central station for supplies, including the seed packets and plant markers from Lesson 2, tongue depressors, cardstock paper, glue, and rulers.
- Make one copy of the *Example Food Label* (Appendix 6E) to be displayed on an overhead projector, or make one copy for each group.
- Gather the seed packets and plant markers from the vegetables planted in Activity 2.3.
- Organize the class into small groups of 3 to 4 youth.

Facilitator Tip: These can be the same groups that were formed in Lesson 1, Activity 1. By doing so, the youth may continue developing teamwork skills with the same group members.

- Provide each group with a sheet of flip chart paper and markers to answer opening questions.

Time Required

60 to 75 minutes

Suggested Groupings

Small groups of 3 to 4 youth

Materials Needed

(*Materials provided in curriculum)

- Flip chart paper
- Markers or writing utensils
- **Nutrition Information* (Appendix 6D)
- **Example Food Label* (Appendix 6E)
- Seed packets and plant markers from vegetables planted in Activity 2.3
- Wooden tongue depressors
- Cardstock paper
- Glue
- Rulers

Opening Questions/Prompts

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

1. Explain what you know about the information provided on the Nutrition Facts Label.
2. Explain what you know about the different nutrients on the Nutrition Facts Label.

Procedure (Experiencing)

1. Provide a copy of the *Nutrient Information* sheet to each group.
2. Explain that each group will create a Nutrition Facts Label and a garden label for one plant in their garden plot. Show the supplies that the youth can use to make the food labels and garden labels. Explain that each will use a tongue depressor as a stake so that they can be used in the garden as plant markers.
3. Display the example Nutrition Facts Label on an overhead projector (Appendix 6E) or provide one copy to each group. Explain to the youth that the food label they create should include all of the information that the example food label provides.
4. Explain to the youth that they will also create a garden label, to provide information about the plant in their garden plot.
5. Have the youth begin planning and making their food labels and garden labels.
6. To calculate the Percent Daily Value (%DV) for each nutrient, the youth will need to divide the amount of the nutrient found in the serving of food by the amount in the row titled Amount Needed Daily (Daily Value).

Facilitator Tip: let the youth try to develop a strategy to calculate the %DV on their own using the information provided. If they have difficulty, then help them through the calculation.

Sharing, Processing, and Generalizing

1. Have the youth share their food labels and garden labels.
2. Follow the lines of thinking developed through general thoughts, observations and questions raised by the youth as they share and compare their thoughts and ideas regarding the way they constructed the food labels. If necessary, use more targeted questions:
 - Explain how you went about solving the problem of calculating the percent daily value.
 - Explain how you went about deciding what to include on your garden label.

Facilitator Tip: Have the youth finish the activity by placing their labels in the garden as plant markers in the soil next to the plant they chose.

Facilitator Tip: To protect the completed garden labels from water, they may be laminated or covered with a plastic bag.

Activity 6.4: Goal Setting Application

Getting Ready

1. Make copies of the *Goal Setting* handout (Appendix 6F), one for each youth.

Procedure (Experiencing)

1. Provide a copy of the *Goal Setting* handout to each youth.
2. Ask the youth to complete the *Goal Setting* handout for themselves and with their families. They will answer the following questions:
 - What are some things you can do to make healthy choices about foods?
 - What are some things your family can do to make healthy choices about foods?
3. When the youth return with the completed sheet, ask the youth to share the goals they set for themselves and for their families to meet the recommendations.

Time Required

5 to 10 minutes

Materials Needed

- (*Materials provided in curriculum)
- **Goal Setting* (Appendix 6F)

Dairy A

Nutrition Facts

1 servings per package
Serving Size 1 piece (28g)

Amount per serving
Calories 102

Total Fat 9g **11%**
Saturated Fat 5g **25%**
Trans Fat 0g

Cholesterol 28mg **9%**
Sodium 468mg **20%**

Total Carbohydrate 1g **0%**
Dietary Fiber 0g **0%**
Total Sugars 1g

Includes 0g Added Sugars **0%**
Protein 5g

Vitamin D 2mcg **11%**
Calcium 293mg **23%**
Iron 0mg **0%**
Potassium 37mg **1%**

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Dairy B

Nutrition Facts

10 servings per package
Serving Size 1/2 cup (66g)

Amount per serving
Calories 137

Total Fat 7g **9%**
Saturated Fat 4g **22%**
Trans Fat 0g

Cholesterol 29mg **10%**
Sodium 53mg **2%**

Total Carbohydrate 16g **6%**
Dietary Fiber 1g **2%**
Total Sugars 14g

Includes 8g Added Sugars **16%**
Protein 2g

Vitamin D 0mcg **0%**
Calcium 84mg **6%**
Iron 0mg **0%**
Potassium 131mg **3%**

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Dairy C

Nutrition Facts

1 serving per container
Serving Size 1 cup (250g)

Amount per serving
Calories 155

Total Fat 3g **3%**
Saturated Fat 1g **7%**
Trans Fat 0g

Cholesterol 12mg **4%**
Sodium 162mg **7%**

Total Carbohydrate 25g **9%**
Dietary Fiber 0g **0%**
Total Sugars 25g

Includes 14g Added Sugars **12%**
Protein 9g

Vitamin D 3mcg **15%**
Calcium 322mg **25%**
Iron 1mg **3%**
Potassium 430mg **9%**

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Fruit A

Nutrition Facts	
Serving Size	1 small (109g)
Amount per serving	
Calories	77
	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 1mg	0%
Total Carbohydrate 21g	7%
Dietary Fiber 4g	13%
Total Sugars 15g	
Includes 0g Added Sugars	0%
Protein 0g	
Vitamin D 0mcg	0%
Calcium 9mg	1%
Iron 0mg	0%
Potassium 159mg	3%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Fruit B

Nutrition Facts	
Serving Size	1 cup (109g)
Amount per serving	
Calories	194
	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 16mg	1%
Total Carbohydrate 52g	19%
Dietary Fiber 3g	11%
Total Sugars 49g	
Includes 32g Added Sugars	64%
Protein 1g	
Vitamin D 0mcg	0%
Calcium 8mg	1%
Iron 1mg	6%
Potassium 241mg	5%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Fruit C

Nutrition Facts	
Serving Size	1 small box (43g)
Amount per serving	
Calories	129
	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 5mg	0%
Total Carbohydrate 34g	12%
Dietary Fiber 2g	7%
Total Sugars 25g	
Includes 5g Added Sugars	10%
Protein 1g	
Vitamin D 0mcg	0%
Calcium 22mg	2%
Iron 1mg	6%
Potassium 322mg	7%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Grain A

Nutrition Facts	
6 servings per package	
Serving Size	2 pieces (64g)
Amount per serving	
Calories	160
	% Daily Value*
Total Fat 2g	3%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 291mg	13%
Total Carbohydrate 27g	10%
Dietary Fiber 4g	14%
Total Sugars 3g	
Includes 1g Added Sugars	2%
Protein 8g	
Vitamin D 0mcg	0%
Calcium 103mg	8%
Iron 2mg	9%
Potassium 163mg	3%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Grain B

Nutrition Facts	
10 servings per package	
Serving Size	1 cup (158g)
Amount per serving	
Calories	205
	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 2mg	0%
Total Carbohydrate 45g	16%
Dietary Fiber 1g	2%
Total Sugars 0g	
Includes 0g Added Sugars	0%
Protein 4g	
Vitamin D 0mcg	0%
Calcium 16mg	1%
Iron 2mg	11%
Potassium 55mg	1%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Grain C

Nutrition Facts	
6 servings per package	
Serving Size	1 item (39g)
Amount per serving	
Calories	106
	% Daily Value*
Total Fat 4g	5%
Saturated Fat 1g	4%
Trans Fat 0g	
Cholesterol 6mg	2%
Sodium 242mg	11%
Total Carbohydrate 16g	6%
Dietary Fiber 1g	3%
Total Sugars 2g	
Includes 1g Added Sugars	2%
Protein 3g	
Vitamin D 4mcg	21%
Calcium 109mg	8%
Iron 2mg	13%
Potassium 49mg	1%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Protein A

Nutrition Facts	
2 servings per container	
Serving Size	2 ounces (85g)
Amount per serving	229
Calories	% Daily Value*
Total Fat 13g	16%
Saturated Fat 7g	17%
<i>Trans</i> Fat 0g	
Cholesterol 76mg	25%
Sodium 71mg	3%
Total Carbohydrate 3g	1%
Dietary Fiber 0g	0%
Total Sugars 0g	
Includes 0g Added Sugars	0%
Protein 24g	
Vitamin D 0mcg	0%
Calcium 14mg	1%
Iron 1mg	7%
Potassium 199mg	4%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Protein B

Nutrition Facts	
2 servings per container	
Serving Size	3 ounces (85g)
Amount per serving	73
Calories	% Daily Value*
Total Fat 1g	1%
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 31mg	10%
Sodium 210mg	9%
Total Carbohydrate 0g	0%
Dietary Fiber 0g	0%
Total Sugars 0g	
Includes 0g Added Sugars	0%
Protein 17g	
Vitamin D 1mcg	5%
Calcium 14mg	1%
Iron 1mg	8%
Potassium 152mg	3%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Protein C

Nutrition Facts	
2 servings per container	
Serving Size	1 cup (238g)
Amount per serving	214
Calories	% Daily Value*
Total Fat 5g	6%
Saturated Fat 2g	10%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 881mg	38%
Total Carbohydrate 32g	12%
Dietary Fiber 9g	32%
Total Sugars 1g	
Includes 0g Added Sugars	0%
Protein 12g	
Vitamin D 0mcg	0%
Calcium 69mg	5%
Iron 3mg	16%
Potassium 759mg	16%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Vegetable A

Nutrition Facts	
Serving Size	1 cup (128g)
Amount per serving	52 Calories
Total Fat 0g	0% Daily Value*
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 88mg	4%
Total Carbohydrate 12g	4%
Dietary Fiber 4g	13%
Total Sugars 6g	
Includes 0g Added Sugars	0%
Protein 1g	
Vitamin D 0mcg	0%
Calcium 42mg	3%
Iron 0mg	0%
Potassium 410mg	9%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Vegetable B

Nutrition Facts	
Serving Size	2 cups (128g)
Amount per serving	11 Calories
Total Fat 0g	0% Daily Value*
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 20mg	1%
Total Carbohydrate 2g	1%
Dietary Fiber 1g	3%
Total Sugars 1g	
Includes 0g Added Sugars	0%
Protein 1g	
Vitamin D 0mcg	0%
Calcium 26mg	2%
Iron 1mg	3%
Potassium 140mg	3%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Vegetable C

Nutrition Facts	
Serving Size	Small (71g)
Amount per serving	229 Calories
Total Fat 11g	15% Daily Value*
Saturated Fat 2g	10%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 134mg	6%
Total Carbohydrate 30g	1%
Dietary Fiber 3g	11%
Total Sugars 0g	
Includes 0g Added Sugars	0%
Protein 3g	
Vitamin D 0mcg	0%
Calcium 13mg	1%
Iron 1mg	6%
Potassium 423mg	9%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

APPENDIX 6B: Food Label Key

Dairy A: 1 slice of American cheese

Dairy B: ½ cup of vanilla ice cream

Dairy C: 1 cup of chocolate milk, lowfat(1%)

Fruit A: 1 small apple

Fruit B: 1 cup of canned peaches in heavy syrup

Fruit C: 1 small box of raisins

Grains A: 2 slices of whole-wheat bread

Grains B: 1 cup of cooked white rice

Grains C: 1 buttermilk waffle (frozen, ready-to-heat)

Protein A: 3 ounces of fried chicken

Protein B: 3 ounces of canned tuna

Protein C: 1 cup of refried beans

Vegetable A: 1 cup of carrots

Vegetable B: 1 cup of green leaf lettuce

Vegetable C: 1 small serving of French fries

APPENDIX 6C: Food Labels at the Market

Visit a grocery store or market with your family. Compare food labels of similar food items, and when comparing them, choose which food you think is a healthier option. Then answer the questions below.

What foods did you compare?

What did you look for to compare the two foods?

Which one do you think is the healthier food and why?

APPENDIX 6D: Nutrient Information

Fruit or vegetable	Serving size	Calories	Total fat (g)	Saturated fat (g)	Trans fat (g)	Cholesterol (mg)	Sodium (mg)	Total carbohydrate (g)	Dietary fiber (g)	Total sugars (g)	Added sugars (g)	Protein (g)	Vitamin D (mcg)	Calcium (mg)	Iron (mg)	Potassium (mg)
Amount Needed Daily (Daily Value)	n/a	2,000	65	20	n/a	300	2,300	300	28	n/a	n/a	50	20	1,300	18	4,700
beets	1 cup	60	0	0	0	0	128	16	4	10	0	2	0	26	1.2	442
black beans	1 cup	228	0	0	0	0	2	40	14	2	0	16	0	46	3.6	611
black-eyed peas	1 cup	198	0	0	0	0	6	36	12	6	0	14	0	42	4.2	690
broccoli	1 cup	30	0	0	0	0	30	6	2	2	0	2	0	42	0.6	288
cabbage	2 cups	36	0	0	0	0	26	8	4	2	0	2	0	56	0.6	151
carrots	1 cup	53	0	0	0	0	0	12	3	4	0	1	0	27	0	410
corn	1 cup	124	2	0	0	0	0	28	2	10	0	4	0	2	0.8	392
cucumbers	1 cup	16	0	0	0	0	2	4	0	2	0	0	0	16	0	153
eggplant	1 cup	20	0	0	0	0	2	4	2	2	0	0	0	8	0.2	122
garlic	1 clove	4	0	0	0	0	0	1	0	0	0	0	0	5	0.1	12
green beans	1 cup	32	0	0	0	0	2	8	2	4	0	2	0	36	1	182
green peas	1 cup	118	0	0	0	0	8	20	8	8	0	8	0	36	2.2	384
kale	2 cups	73	1	0	0	0	40	15	3	3	0	5	0	187	2.34	79
kohlrabi	1 cup	36	0	0	0	0	28	8	4	4	0	2	0	32	0.6	561
leeks	1 cup	54	0	0	0	0	18	12	2	4	0	2	0	52	1.8	140
lettuce	2 cups	20	0	0	0	0	14	4	2	2	0	2	0	26	0.6	90
okra	1 cup	32	0	0	0	0	8	8	4	4	0	2	0	80	0.8	216
onion	1 cup	64	0	0	0	0	6	14	2	6	0	2	0	36	0.4	349
pepper (chiles)	1 cup	32	0	0	0	0	16	8	4	8	0	4	0	16	0.4	483
potatoes	1 each	164	0	0	0	0	13	37	5	2	0	4	0	26	1.7	952
radishes	1 each	1	0	0	0	0	2	0	0	0	0	0	0	1	0	270
soybeans	1 cup	310	16	2	0	0	4	18	10	6	0	30	0	184	9.2	970
spinach	2 cups	14	0	0	0	0	48	2	2	0	0	2	0	60	1.6	334
strawberries	1 cup	46	0	0	0	0	2	12	2	8	0	0	0	0	0.6	233
summer squash	1 cup	18	0	0	0	0	8	4	2	2	0	2	0	58	1.4	282
sweet potatoes	1 cup	174	0	0	0	0	74	26	4	12	0	2	0	40	0.8	754
Swiss chard	2 cups	14	0	0	0	0	0	2.8	1.2	0.8	0	2	0	36	1.4	961
taro root	1 cup	60	0	0	0	0	74	10	0	0	0	6	0	204	2.14	639
tomato	1 cup	32	0	0	0	0	8	8	2	4	0	2	0	18	0.4	427
winter squash	1 cup	40	0	0	0	0	4	5	2	0	0	2	0	32	0.6	896

APPENDIX 6E: Example Food Label

Nutrition Facts	
Serving Size	0 (0g)
Amount per serving	
Calories	0
	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 0g	0%
Dietary Fiber 0g	0%
Total Sugars 0g	
Includes 0g Added Sugars	0%
Protein 0g	
Vitamin D 0mcg	0%
Calcium 0mg	0%
Iron 0mg	0%
Potassium 0mg	0%
* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.	

APPENDIX 6F: Goal Setting

Setting Goals for Making Healthy Choices

What are some things you can do to make healthy choices about foods?

What are some things your family can do to make healthy choices about foods?

Module 7: Consumerism

Background Information

Consumerism is an economic strategy where **consumers** are encouraged to buy **goods** and services in increasing amounts. Consumerism is based on the idea that an increased consumption of goods benefits the overall economy. **Marketing** is a way that companies attract consumers and encourage them to buy particular goods and services, like food, clothing, household items, etc. Food companies, restaurants, and grocery stores use marketing to promote the purchase of particular food items. Marketing efforts include product development, identification of target consumers, establishment of product pricing, packaging design, and product promotion through **advertisements**. An advertisement is a message through the **media** that promotes goods or services. We see advertisements of food products in many places, including television commercials, grocery stores, magazines, newspapers, fliers mailed to our homes, radio, and the internet.

Common marketing techniques used in advertisements and product packaging include **health claims**, bright colors, catchy slogans, songs and phrases, free toys and prizes, television or movie celebrities and cartoon characters as spokespersons, and sale prices.

Food companies spend a great deal of time and money to convince people to buy their products. In the United States, approximately six billion dollars are spent each year on food advertising, and children between 8 and 12 years of age view approximately 21 food advertisements on television each day (Kaiser Family Foundation 2007).

Due to the influence of advertising, it is important that people be able to make informed choices about the foods they eat. In order to make informed choices, people have to become educated consumers by learning about marketing practices and how to use reliable resources for information, like the Nutrition Facts label found on food packaging.

Concepts and Vocabulary

- **Advertisement:** a message through the media that promotes goods or services.
- **Consumerism:** an economic strategy where consumers are encouraged to buy goods and services in increasing amounts.
- **Consumer:** a person who purchases goods or services.
- **Goods:** products made and sold to satisfy the wants and needs of the buyer.
- **Health claim:** a statement that a relationship exists between consumption of a food or an ingredient in the food and a person's health.
- **Marketing:** the technique of promoting and selling a consumer good.
- **Media:** means by which promotional messages are communicated to the public (e.g., television, radio, newspaper).

Life Skills

Teamwork, Public Speaking, Critical Thinking

Subject Links

English-Language Arts, Science, Nutrition, Health

Educational Standards Supported

Discovering Healthy Choices curriculum supports Next Generation Science Standards, Common Core State Standards, and California Nutrition Education Competencies. For specific details on standards and grade levels, please see page 9.

Activity 7.1: Classroom Activity

Getting Ready

1. Make copies of the *Cereal “Boxes”* (Appendix 7A); one set for each group.
2. Make copies of the *Cereal Information Cards* (Appendix 7B), one card for each group. Cut out the individual cards.
3. Organize the class into small groups of 3 to 4 youth.

Facilitator Tip: These can be the same groups that were formed in Module 1, Activity 1. By doing so, the youth may continue developing teamwork skills with the same group members.

4. Provide each group with a sheet of flip chart paper and markers to answer opening questions.

Time Required

60 to 75 minutes

Suggested Groupings

Small groups of 3 to 4 youth

Materials needed

(*Materials provided in curriculum)

- Flip chart paper
- Markers or other writing utensils
- **Cereal “Boxes”* (Appendix 7A)
- **Cereal Information Cards* (Appendix 7B)

Opening Questions/Prompts

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

- Discuss places where you see and hear advertisements for food products.
- Explain how you think advertisements try to persuade us to buy their food.

Procedure (Experiencing)

1. Provide each group with one copy of the *Cereal “Boxes.”*
2. Ask each group to discuss the cereal box packaging, including what they like or dislike about it, what caught their attention, and why (or why not) they might purchase it in the grocery store. Have them discuss in what ways they think what is written or illustrated on the cereal box may be trying to influence them to purchase the cereal. Have them record their ideas on the flip chart paper.
3. Have each group share their observations about the cereal boxes with the class.
4. Provide one *Cereal Information Card* to each group.
5. Ask the youth to create a 30-second commercial to perform as a skit. Ask them to create the commercial using the *Cereal Information Card*. Explain that the goal of the advertisement is to get as many other youth as possible to buy their product but not to reveal the Nutrition Facts Label. Allow enough time for each group to complete the task.
6. Have each group perform their 30-second commercial for the class.
7. Ask the youth to discuss within their group the observations they made about the different techniques used by each group to sell their cereal. Based on the commercials, have the youth vote on which cereal they would buy. Have them write down their decision on the flip chart paper.
8. Have each group share the Nutrition Facts Label from their cereal with the class.
9. Ask each group to discuss if they would change their mind about buying the cereal, based on the Nutrition Facts Label. Have them write down their thoughts on the flip chart paper.

Sharing, Processing, and Generalizing

1. Ask the youth to share what they decided to include in their own commercial, why they made those decisions, and their thoughts about the other commercials.
2. Follow the lines of thinking of the youth through their general thoughts, observations, and questions. If necessary, ask more targeted questions/prompts:
 - Explain how you went about deciding what you would convey in your commercial.
 - Explain how you went about making the decision about which commercials did the best job at selling the cereal.
 - If you changed your mind after the Nutrition Facts were revealed, explain what it was about the Nutrition Facts that made you alter your decision.
 - Discuss how you think food packages and advertisements influence our food purchases.
 - Explain what we can do to avoid being convinced to buy a food based only on an advertisement.

Concept and Term Discovery/Introduction

Youth should understand there are several ways companies use product packaging to entice people to purchase foods, including the use of bright colors, health claims, characters, and prizes. They should also understand that commercials are another way that food companies entice us to purchase their products. The youth should also find out that there is reliable information, like Nutrition Facts Labels, that can help us make informed choices. Additionally, make sure that key vocabulary terms are either discovered by the youth or introduced to them: **consumerism, consumer, advertisement, health claim, marketing, and media.**

Activity 7.2: Home Concept Application

Getting Ready

1. Make copies of the *Television Advertising and Consumerism* worksheet (Appendix 7C), one for each youth.

Procedure (Experiencing)

1. Provide each group with one copy of the *Television Advertising and Consumerism* worksheet.
2. Ask the youth to take home the *Television Advertising and Consumerism* worksheet and complete it with their families. Explain that when they are watching television with their families they will select two television commercials to describe. Ask them to write down their observations about the techniques the food companies used to influence them to buy their product.
3. When the youth return with the completed sheet, ask the youth to share their observations about the television advertisements.

Time Required

5 to 10 minutes

Suggested Groupings

Individuals

Materials Needed

(*Materials provided in curriculum)

- **Television Advertising and Consumerism* (Appendix 7C)

Activity 7.3: Garden Concept Application

Getting Ready

1. Make copies of the *Garden Advertising* worksheet (Appendix 7D), one for each group.
2. Organize the class into small groups of 3 to 4 youth.

Facilitator Tip: these can be the same groups that were formed in Lesson 1, Activity 1. By doing so, the youth may continue developing teamwork skills with the same group members.

3. Provide each group with a sheet of flip chart paper and markers to answer opening questions.

Opening Questions/Prompts

1. Explain what you know about advertising.
2. Explain what you know about plants and in what ways they might advertise.
3. Explain why you think it might be important for plants to advertise.

Procedure (Experiencing)

1. Provide each group with one copy of the *Garden Advertising* worksheet.
2. Explain to the youth that they will go to the garden and make observations about the habitat plants in the garden. Ask them to answer each of the questions on the *Garden Advertising* worksheet.

Sharing, Processing, and Generalizing

1. Ask the youth to share what they observed in the garden.
2. Follow the lines of thinking of the youth through their general thoughts, observations, and questions. If necessary, ask more targeted questions/prompts:
 - Explain what you noticed about how plants advertised and how you arrived at your conclusion.
 - Explain what you observed regarding similarities and differences in the way different plants advertise.
 - Explain how you originally chose the habitat plant you planted.
 - How are your observations today similar or different from your original prediction?

Facilitator Tip: This activity could be preceded by a lesson about pollinators to meet the California Science Content Standard for Grade 4 Life Sciences: living organisms depend on one another and on their environment for survival.

Time Required

60 to 75 minutes

Suggested Groupings

Small groups of 3 to 4 youth

Materials Needed

(*Materials provided in curriculum)

- Flip chart paper
- Markers or writing utensils
- **Garden Advertising* (Appendix 7D)

Facilitator Tip: The garden space should have been previously planted with habitat plants during Lesson 2.3 (Getting Physically Active Garden Application) so that the plants are now mature enough to attract pollinators and other beneficial insects.

Activity 7.4: Goal Setting Application

Getting Ready

1. Make copies of the *Goal Setting* worksheet (Appendix 7E), one for each youth.

Procedure (Experiencing)

1. Provide each group with one copy of the Goal Setting worksheet.
2. Ask the youth to take home the Goal Setting worksheet (Appendix 7D) and complete it with their families. They will answer the following questions:
 - What are some things you can do to make informed food choices?
 - What are some things your family can do to make informed food choices?
3. When the youth return with the completed sheet, ask the youth to share the goals they set for themselves and for their families.

Time required
5 to 10 minutes

Suggested Groupings
Individuals

Materials Needed
(*Materials provided in curriculum)

- **Goal Setting* (Appendix 7E)

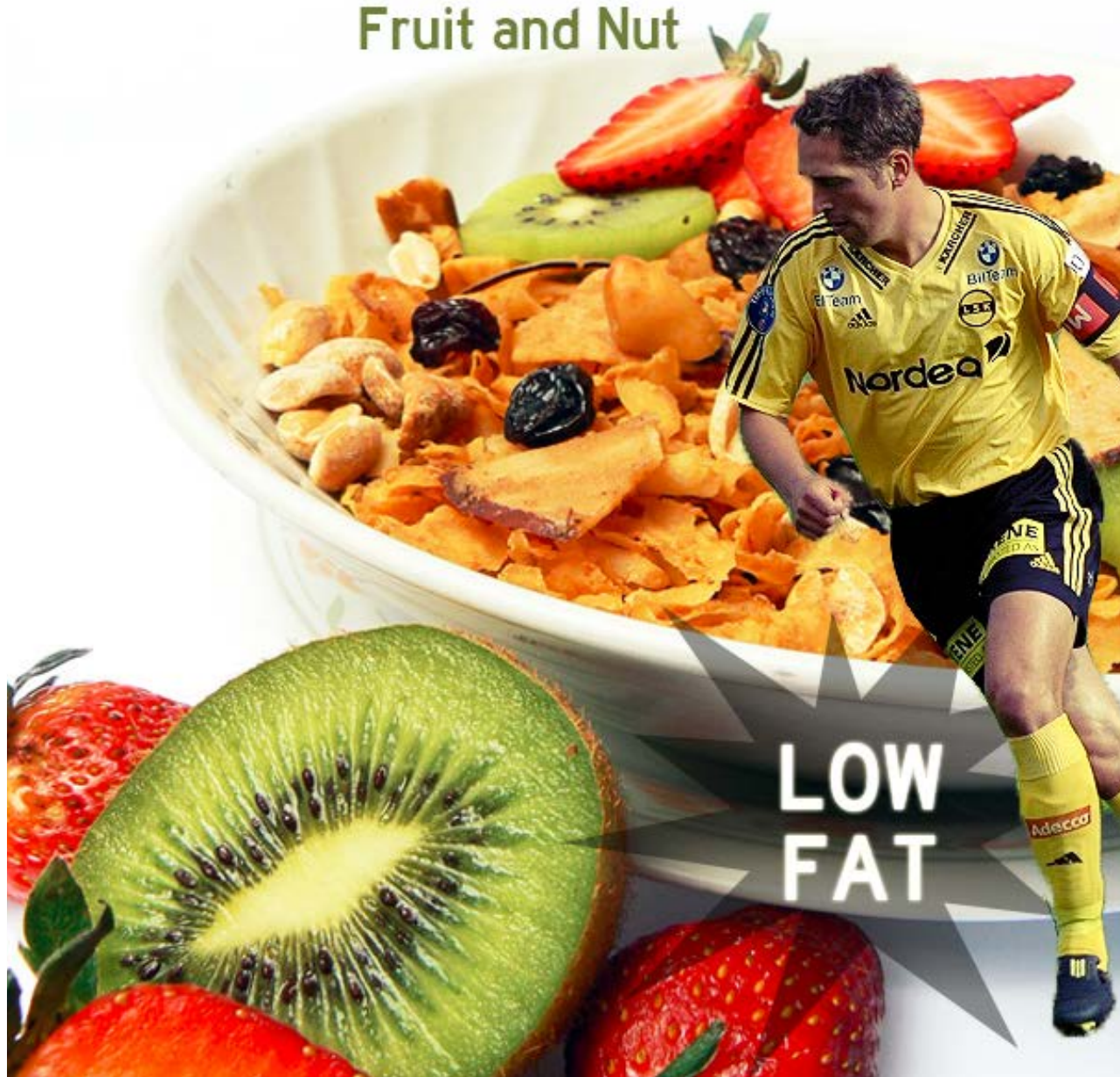
APPENDIX 7A: Cereal Boxes



APPENDIX 7A: Cereal Boxes

Heart Healthy Granola

Fruit and Nut



7B

APPENDIX 7B: Cereal Information Cards

Cinnamon Twists

Nutrition Facts	
11 servings per box Serving Size	3/4 Cup (31g)
Amount per serving	
Calories	130
	% Daily Value*
Total Fat 3g	5%
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 220mg	9%
Total Carbohydrate 25g	8%
Dietary Fiber 2g	4%
Total Sugars 17g	
Includes 10g Added Sugars	20%
Protein 1g	
Vitamin D 0mcg	0%
Calcium 130mg	10%
Iron 4mg	22%
Potassium 335mg	7%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Dr. Braintastic

Nutrition Facts	
11 servings per box Serving Size	3/4 Cup (28g)
Amount per serving	
Calories	100
	% Daily Value*
Total Fat 0g	5%
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 90mg	4%
Total Carbohydrate 24g	8%
Dietary Fiber 6g	21%
Total Sugars 18g	
Includes 4g Added Sugars	5%
Protein 1g	
Vitamin D 0mcg	0%
Calcium 130mg	10%
Iron 2mg	7%
Potassium 470mg	10%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Funky Monkey Crunch

Nutrition Facts	
11 servings per box Serving Size	3/4 Cup (30g)
Amount per serving	
Calories	180
	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 300mg	13%
Total Carbohydrate 30g	14%
Dietary Fiber 10g	36%
Total Sugars 20g	
Includes 0g Added Sugars	0%
Protein 6g	
Vitamin D 0mcg	0%
Calcium 180mg	14%
Iron 2mg	7%
Potassium 658mg	14%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

7B

APPENDIX 7B: Cereal Information Cards

Marshmallow Crunchies

Nutrition Facts	
11 servings per box	3/4 Cup (40g)
Serving Size	
Amount per serving	Calories 150
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 200mg	5%
Total Carbohydrate 36g	13%
Dietary Fiber 3g	10%
Total Sugars 33g	
Includes 20g Added Sugars	40%
Protein 1g	
Vitamin D 0mcg	0%
Calcium 130mg	10%
Iron 2mg	7%
Potassium 200mg	4%
* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.	

Outer Space O's

Nutrition Facts	
11 servings per box	3/4 Cup (32g)
Serving Size	
Amount per serving	Calories 150
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 300mg	13%
Total Carbohydrate 30g	14%
Dietary Fiber 5g	18%
Total Sugars 25g	
Includes 15g Added Sugars	30%
Protein 1g	
Vitamin D 0mcg	0%
Calcium 130mg	10%
Iron 2mg	7%
Potassium 200mg	4%
* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.	

Chocolate Rockets

Nutrition Facts	
11 servings per box	3/4 Cup (30g)
Serving Size	
Amount per serving	Calories 170
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 300mg	13%
Total Carbohydrate 40g	14%
Dietary Fiber 1g	4%
Total Sugars 35g	
Includes 20g Added Sugars	40%
Protein 1g	
Vitamin D 0mcg	0%
Calcium 130mg	10%
Iron 2mg	7%
Potassium 200mg	4%
* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.	

APPENDIX 7B: Cereal Information Cards

Peanut Butter Cocoa Crunchies

Nutrition Facts	
12 servings per box	3/4 Cup (30g)
Amount per serving	
Calories	115
% Daily Value*	
Total Fat 2g	0%
Saturated Fat 1g	5%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 200mg	9%
Total Carbohydrate 21g	14%
Dietary Fiber 1g	4%
Total Sugars 9g	
Includes 6g Added Sugars	12%
Protein 2g	
Vitamin D 0mcg	0%
Calcium 2mg	1%
Iron 5mg	28%
Potassium 54mg	1%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Wild West Gold Nuggets

Nutrition Facts	
11 servings per box	3/4 Cup (30g)
Amount per serving	
Calories	170
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 300mg	13%
Total Carbohydrate 40g	14%
Dietary Fiber 1g	4%
Total Sugars 35g	
Includes 20g Added Sugars	40%
Protein 1g	
Vitamin D 0mcg	0%
Calcium 130mg	10%
Iron 2mg	7%
Potassium 200mg	4%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

APPENDIX 7C: Television Advertising and Consumerism

When you are watching television with your family, select two food advertisements and then answer the following questions about them.

- 1. Describe the first advertisement.**
- 2. What are some techniques the first food company used to influence you to purchase their product?**
- 3. Describe the second advertisement.**
- 4. What are some techniques the second food company used to influence you to purchase their product?**
- 5. What are the similarities and differences between the two television advertisements?**

APPENDIX 7D: Garden Advertising

Garden plant	Plant name and short description.	Is this the plant your group chose? If yes, explain why you originally chose this plant.	Describe ways you think the plant advertises to insects and other animals.	Describe the insects or other animals you observed.	Explain how similar or different the plant was to what you expected when you chose to plant it.
1.					
2.					
3.					
4.					

APPENDIX 7E: Goal Setting

What are some things you can do to make informed food choices?

What are some things your family can do to make informed food choices?

Module 8: Making Healthy Snacks

Background Information

Now that youth have learned about strategies they can use to make healthy choices, they can apply them to choosing healthy snacks. For example:

- Understanding what **servicing sizes** are and how to use them helps us compare different food items.
- Knowing the **MyPlate** recommendations based on age, gender, and physical activity level helps us make sure we are getting all the nutrients we need from all the food groups. Key MyPlate recommendations can guide us in making healthy snacks. These recommendations include: make half your plate fruits and vegetables, choose low-fat or fat-free dairy, make half your grains whole, and go lean with protein.
- Understanding how to read **Nutrition Facts Labels** allows us access to reliable information about the nutrients that are in snack foods. This label can help you choose snacks that are high in vitamins and minerals, and low in saturated fat and sodium.
- Additionally, understanding **consumerism** and the methods that marketing companies use to persuade us to choose their food products, we can apply our knowledge to make healthy choices and select foods that are best for us.

Concepts and Vocabulary

- **Consumerism:** an economic strategy where **consumers** are encouraged to buy **goods** and services in increasing amounts.
- **MyPlate:** a nutrition guide developed by the United States Department of Agriculture (USDA). It illustrates the five food groups that are the building blocks for a healthy diet.
- **Nutrition Facts Label:** a label found on food packaging that displays nutritional content of food products.
- **Serving Sizes:** standard reference amounts that are set by the United States Food and Drug Administration (FDA).

Life Skills

Cooperation, Communication, Critical Thinking, Healthy Life-Style Choices, Teamwork, Problem-Solving.

Subject Links

English Language-Arts, Nutrition, Health

Educational Standards Supported

Discovering Healthy Choices curriculum supports Next Generation Science Standards, Common Core State Standards, and California Nutrition Education Competencies. For specific details on standards and grade levels, please see page 9.

Activity 8.1: Classroom Activity

Getting Ready

1. Make copies of the *Healthy Snack Ingredient Cards* (Appendix 8A), one set for each group. Fold each of the cards along the dotted line so that the picture is on one side and the food label is on the other.
2. Make copies of the *MyPlate* handout (Appendix 8B), one for each group.
3. Organize the class into small groups of 3 to 4 youth.

Facilitator Tip: these can be the same groups that were formed in Lesson 1, Activity 1. By doing so, the youth may continue developing teamwork skills with the same group members.

4. Provide each group with one sheet of flip chart paper and markers to answer opening questions.

Time Required

60 minutes

Suggested Groupings

Small groups of 3 to 4 youth

Materials Needed

(*Materials provided in curriculum)

- Flip chart paper
- Markers or writing utensils
- **Healthy Snack Ingredient Cards* (Appendix 8A)
- **MyPlate* (Appendix 8B)

Opening Questions/Prompts

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

1. Explain what you know about different nutrients.
2. Explain what you know about MyPlate recommendations.
3. Explain what you know about food labels.
4. Explain what you know about different factors that can influence our food choices.

Procedure (Experiencing)

1. Provide each group with one set of the *Healthy Snack Ingredient Cards* and a copy of the *MyPlate* handout.
2. With the picture side up, ask the youth to organize the set of *Healthy Snack Ingredient Cards* according to the MyPlate food groups: fruits, vegetables, protein, dairy, and grains. Have them record how they organized their cards on the flip chart paper.
3. Ask each group to share how they organized their cards based on the MyPlate food groups.
4. Have the youth flip the cards over and categorize the foods based on the nutrient information displayed on the Nutrition Facts Label. Ask them to record on the flip chart paper which nutrients they used to reorganize their cards.
5. Ask each group to share how they organized their cards using the Nutrition Facts Label.
6. Ask each group to create what they think is a healthy snack, choosing from the foods on the *Healthy Snack Ingredient Cards*. Have the groups write their healthy snack choices on the flip chart paper.

Sharing, Processing, and Generalizing

1. Have the youth share what they chose for their healthy snack and explain how they went about making that choice.
2. Follow the lines of thinking developed through youths' thoughts, observations, and questions as they share. If necessary, use more targeted questions/prompts:
 - Explain how you went about building your healthy snack.
 - Explain how you determined what makes a healthy snack.
 - Explain why you think it is important to choose healthy snacks.

Concept and Term Discovery/Introduction

Make sure youth understand how to use reliable nutrition resources to choose healthy snacks, including MyPlate recommendations and Nutrition Facts Labels. Youth should also understand that when making healthy snacks, fruits and veggies, whole grains, lean protein, and fat-free or low-fat (1%) dairy are recommended. Additionally, make sure that key vocabulary terms are either discovered by the youth or introduced to them: **servicing sizes, MyPlate, Nutrition Facts Labels, and consumerism.**

Activity 8.2: Garden Concept Application

Getting Ready

1. Check the garden to find out if there are vegetables that are ready to be harvested for “finger salads.”
2. Purchase a variety of additional ingredients for “finger salads” (using *Finger Salad Recipe*, Appendix 8C).
3. Organize the class into small groups of 3 to 4 youth.

Facilitator Tip: These can be the same groups that were formed in Lesson 1, Activity 1. By doing so, the youth may continue developing teamwork skills with the same group members.

4. Provide each group with one sheet of flip chart paper and markers to answer opening questions.

Time Required

60 minutes

Materials Needed

(*Materials provided in curriculum)

- Flip chart paper
- Markers or writing utensils
- **Finger Salad Recipe* (Appendix 8C)
- Ingredients for finger salads from the **Finger Salad Recipe* (Appendix 8C)
- Containers (if harvesting vegetables)
- Knives, forks, plates, napkins, mixing bowls
- Adult volunteers

Opening Questions/Prompts

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

1. Describe what you think is a healthy snack.
2. Explain what you know about making healthy snacks.

8.2

Procedure (Experiencing)

1. Ask the groups to go out to their garden plots and harvest vegetables for finger salads.
2. Collect all the vegetables that were harvested and prepare them for finger salads.
3. Have adult volunteers help wash, dry, peel, and cut the vegetables as needed.
4. Arrange all of the ingredients as a buffet so that the children can choose which ingredients to include in their finger salads.
5. Explain to the youth that they will be building finger salads, a finger-food that can be eaten with your hands. Explain that they will use a large lettuce or cabbage leaf to hold the ingredients, and they will be able to choose the ingredients they want for their own finger salad.

6. Ask the youth to use the ingredients available to build their finger salad.

Facilitator Tip: Take a picture of each child with their finger salad. These pictures can then be printed and displayed in the classroom or cafeteria to reinforce healthy choices.

7. Tell the children they can eat their finger salads.
8. After the youth have eaten their finger salads, have each group create an advertisement for finger salads. Explain they may create any form of advertisement, including: acting out a television commercial, making a poster, or writing a jingle.

Facilitator Tip: if you previously took pictures of the finger salads, the pictures may be used to create advertisements.

Sharing, Processing, and Generalizing

1. Have each group share their advertisements for finger salads.
2. Follow the lines of thinking developed through youths' thoughts, observations, and questions as they share. If necessary, use more targeted questions/prompts:
 - Explain how you went about choosing the ingredients for your finger salad.
 - Explain which foods groups were represented in your finger salad.
 - Explain what it was about your finger salad that made it a healthy snack.
 - Explain how you went about creating your advertisement.
 - Explain how you think other youth could be inspired to make healthy snacks.

Concept and Term Discovery/Introduction

Youth should understand how to use the skills they have learned to make their own healthy snacks.

8.3

Activity 8.3: Goal Setting Application

Getting Ready

- Make copies of the *Goal Setting* worksheet (Appendix 8D), one for each youth.

Procedure (Experiencing)

1. Provide a copy of the *Goal Setting* handout to each youth.
2. Ask the youth to take home the *Goal Setting* sheet (Appendix 8D) and complete it with their families. They will answer the following questions:
 - What are some things you can do to make healthy choices?
 - What are some things your family can do to accomplish this goal?
3. When the youth return with the completed sheet, ask the youth to share the goals they set for themselves and for their families to meet the recommendation.

Time Required

5 to 10 minutes

Materials Needed

(*Materials provided in curriculum)

- *Goal Setting* (Appendix 8D)

8.4

Activity 8.4: Home Application

Getting Ready

- Make copies of the *Making Healthy Snacks at Home* worksheet (Appendix 8E), one for each youth.

Procedure (Experiencing)

1. Provide a copy of the *Making Healthy Snacks at Home* handout to each youth.
2. Ask the youth to take home the *Making Healthy Snacks at Home* worksheet and complete it with their families. Explain that they will make a healthy snack for their family. Ask them to record the recipe for the snack they made and how they went about choosing the snack.
3. When the youth return, ask the youth to share their recipes for a healthy snack and how they went about choosing the snack.

Facilitator Tip: The recipes of healthy snacks the youth make can be compiled into a classroom cookbook for healthy snacks.

Time Required

5 to 10 minutes

Materials Needed

(*Materials provided in curriculum)

- *Making Healthy Snacks at Home* (Appendix 8E)

Beef Jerkey Stick



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Beef Jerkey Stick

Nutrition Facts	
1 serving per container	1 stick (20g)
Amount per serving	
Calories	110
% Daily Value*	
Total Fat 10g	13%
Saturated Fat 4g	20%
<i>Trans</i> Fat 0g	
Cholesterol 27mg	9%
Sodium 306mg	13%
Total Carbohydrate 1g	0%
Dietary Fiber 0g	0%
Total Sugars 0g	
Includes 0g Added Sugars	0%
Protein 4g	
Vitamin D 0mcg	0%
Calcium 20mg	1%
Iron 1mg	4%
Potassium 51mg	1%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Breakfast Cereal



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Breakfast Cereal

Nutrition Facts	
12 servings per container	
Serving Size	1 Cup (28g)
Amount per serving	Calories 100
	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
<i>Trans Fat</i> 0g	
Cholesterol 0mg	0%
Sodium 204mg	10%
Total Carbohydrate 24g	9%
Dietary Fiber 1g	3%
Total Sugars 3g	
Includes 2g Added Sugars	4%
Protein 2g	
Vitamin D 1mcg	5%
Calcium 1mg	0%
Iron 8mg	45%
Potassium 47mg	1%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Strawberry Yogurt



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Strawberry Yogurt

Nutrition Facts	
1 serving per container	
Serving Size	6 ounces (170g)
Amount per serving	Calories 150
	% Daily Value*
Total Fat 1.5g	7%
Saturated Fat 0g	0%
<i>Trans Fat</i> 0g	
Cholesterol 5mg	0%
Sodium 105mg	5%
Total Carbohydrate 29g	11%
Dietary Fiber 0g	0%
Total Sugars 24g	
Includes 10g Added Sugars	20%
Protein 4g	
Vitamin D 80mcg	5%
Calcium 201mg	15%
Iron 0mg	0%
Potassium 240mg	5%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Cherry Tomatoes



Fold Here

Cherry Tomatoes

Nutrition Facts	
Serving Size	1 cup (148g)
Amount per serving	Calories 27
	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 7mg	0%
Total Carbohydrate 6g	2%
Dietary Fiber 2g	7%
Total Sugars 4g	
Includes 0g Added Sugars	0%
Protein 1g	
Vitamin D 0mcg	0%
Calcium 15mg	1%
Iron 0mg	0%
Potassium 353mg	8%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Chocolate Milk (1%)

Nutrition Facts	
Serving Size	1 cup (250g)
Amount per serving	
Calories	155
	% Daily Value*
Total Fat 3g	4%
Saturated Fat 1g	5%
<i>Trans Fat</i> 0g	
Cholesterol 12mg	0%
Sodium 162mg	7%
Total Carbohydrate 25g	9%
Dietary Fiber 0g	0%
Total Sugars 25g	
Includes 13g Added Sugars	26%
Protein 7g	
<hr/>	
Vitamin D 3mcg	15%
Calcium 322mg	21%
Iron 1mg	6%
Potassium 430mg	9%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

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Chocolate Milk (1%)



Milk (1%)



Fold Here

Milk (1%)

Nutrition Facts	
Serving Size	1 cup (244g)
Amount per serving	Calories 102
% Daily Value*	
Total Fat 2g	3%
Saturated Fat 2g	10%
<i>Trans Fat</i> 0g	
Cholesterol 12mg	4%
Sodium 107mg	5%
Total Carbohydrate 12g	4%
Dietary Fiber 0g	0%
Total Sugars 13g	
Includes 0g Added Sugars	0%
Protein 8g	
Vitamin D 3mcg	15%
Calcium 305mg	23%
Iron 0mg	0%
Potassium 366mg	8%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Whole Wheat Crackers



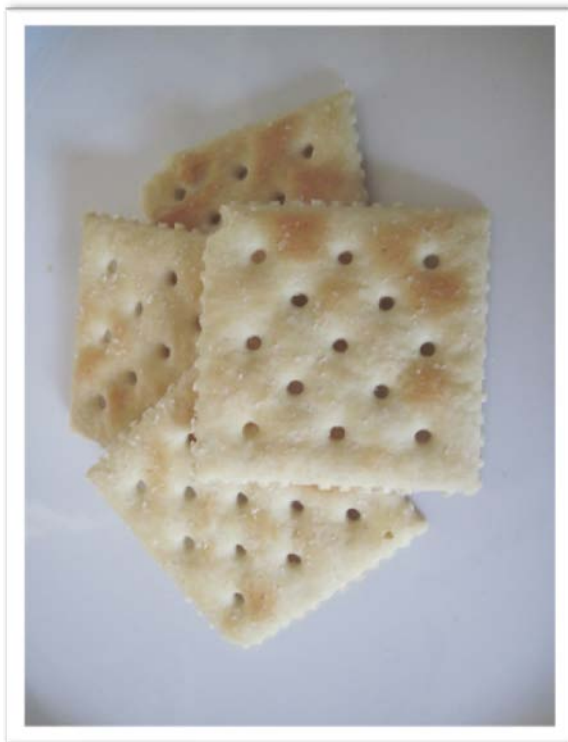
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Whole Wheat Crackers

Nutrition Facts	
8 servings per box	6 crackers (28g)
Amount per serving	
Calories	120
% Daily Value*	
Total Fat 4g	5%
Saturated Fat 1g	3%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 197mg	9%
Total Carbohydrate 19g	7%
Dietary Fiber 3g	10%
Total Sugars 0g	
Includes 0g Added Sugars	0%
Protein 3g	
Vitamin D 0mcg 0%	
Calcium 10mg 1%	
Iron 1mg 6%	
Potassium 27mg 1%	

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Plain Crackers



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Plain Crackers

Nutrition Facts	
8 servings per box	6 crackers (28g)
Amount per serving	
Calories	75
% Daily Value*	
Total Fat 2g	2%
Saturated Fat 0g	0%
<i>Trans Fat</i> 0g	
Cholesterol 0mg	0%
Sodium 168mg	7%
Total Carbohydrate 13g	5%
Dietary Fiber 1g	2%
Total Sugars 0g	
Includes 0g Added Sugars	0%
Protein 2g	
Vitamin D 0mcg 0%	
Calcium 3mg 0%	
Iron 1mg 6%	
Potassium 27mg 1%	

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Chocolate Chip Cookies



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Chocolate Chip Cookies

Nutrition Facts	
6 servings per box	3 cookies (34g)
Amount per serving	
Calories	153
% Daily Value*	
Total Fat 6g	8%
Saturated Fat 2g	10%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 142mg	6%
Total Carbohydrate 23g	8%
Dietary Fiber 1g	4%
Total Sugars 11g	
Includes 10g Added Sugars	20%
Protein 2g	
Vitamin D 0mcg	0%
Calcium 0mg	0%
Iron 1mg	6%
Potassium 46mg	1%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Mixed Nuts



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Mixed Nuts

Nutrition Facts	
10 servings per container	
Serving Size	1 ounce (28g)
Amount per serving	
Calories	170
% Daily Value*	
Total Fat 15g	19%
Saturated Fat 2g	10%
<i>Trans Fat</i> 0g	
Cholesterol 0mg	0%
Sodium 100mg	4%
Total Carbohydrate 6g	2%
Dietary Fiber 2g	7%
Total Sugars 1g	
Includes 0g Added Sugars	0%
Protein 6g	
Vitamin D 0mcg	0%
Calcium 25mg	2%
Iron 1mg	6%
Potassium 182mg	4%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Potato Chips



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Potato Chips

Nutrition Facts	
2 servings per container	
Serving Size	1 ounce (28g)
Amount per serving	Calories 150
% Daily Value*	
Total Fat 10g	13%
Saturated Fat 10g	50%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 150mg	7%
Total Carbohydrate 16g	6%
Dietary Fiber 1g	4%
Total Sugars 1g	
Includes 0g Added Sugars	0%
Protein 2g	
Vitamin D 0mcg	0%
Calcium 6mg	0%
Iron 0mg	0%
Potassium 335mg	7%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Fruit Cup



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Fruit Cup

Nutrition Facts	
1 serving per container	1 cup (242g)
Amount per serving	
Calories	204
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 15mg	0%
Total Carbohydrate 36g	6%
Dietary Fiber 2g	7%
Total Sugars 33g	
Includes 10g Added Sugars	20%
Protein 1g	
Vitamin D 0mcg	0%
Calcium 15mg	1%
Iron 1mg	5%
Potassium 215mg	6%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Peanut Butter



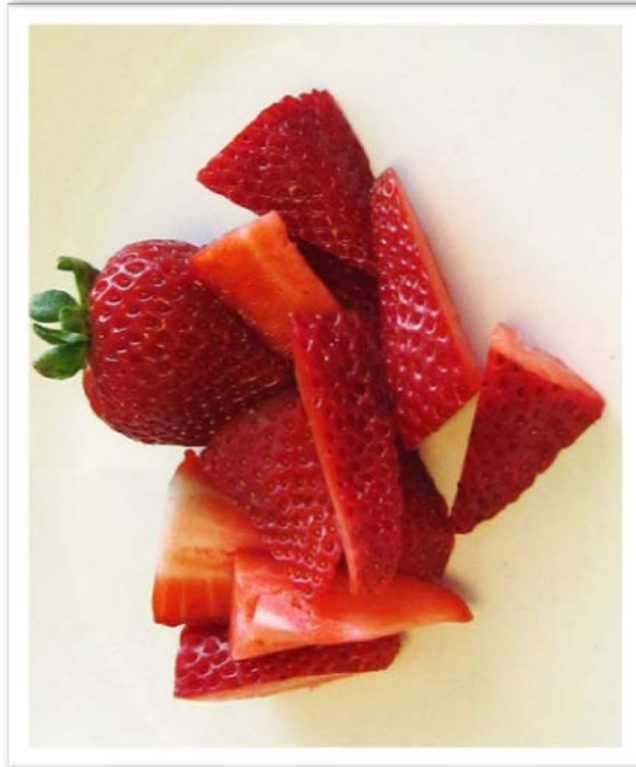
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Peanut Butter

Nutrition Facts	
Serving Size	2 tbsp (32g)
Amount per serving	191
Calories	% Daily Value*
Total Fat 16g	21%
Saturated Fat 3g	15%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 136mg	6%
Total Carbohydrate 7g	3%
Dietary Fiber 2g	6%
Total Sugars 3g	
Includes 0g Added Sugars	0%
Protein 7g	
Vitamin D 0mcg	0%
Calcium 16mg	1%
Iron 1mg	3%
Potassium 179mg	4%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Strawberries



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Strawberries

Nutrition Facts	
Serving Size	1 cup (152g)
Amount per serving	
Calories	50
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 2mg	0%
Total Carbohydrate 12g	4%
Dietary Fiber 3g	10%
Total Sugars 7g	
Includes 0g Added Sugars	0%
Protein 1g	
Vitamin D 0mcg	0%
Calcium 24mg	2%
Iron 1mg	5%
Potassium 233mg	4%

*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Sugar Snap Peas



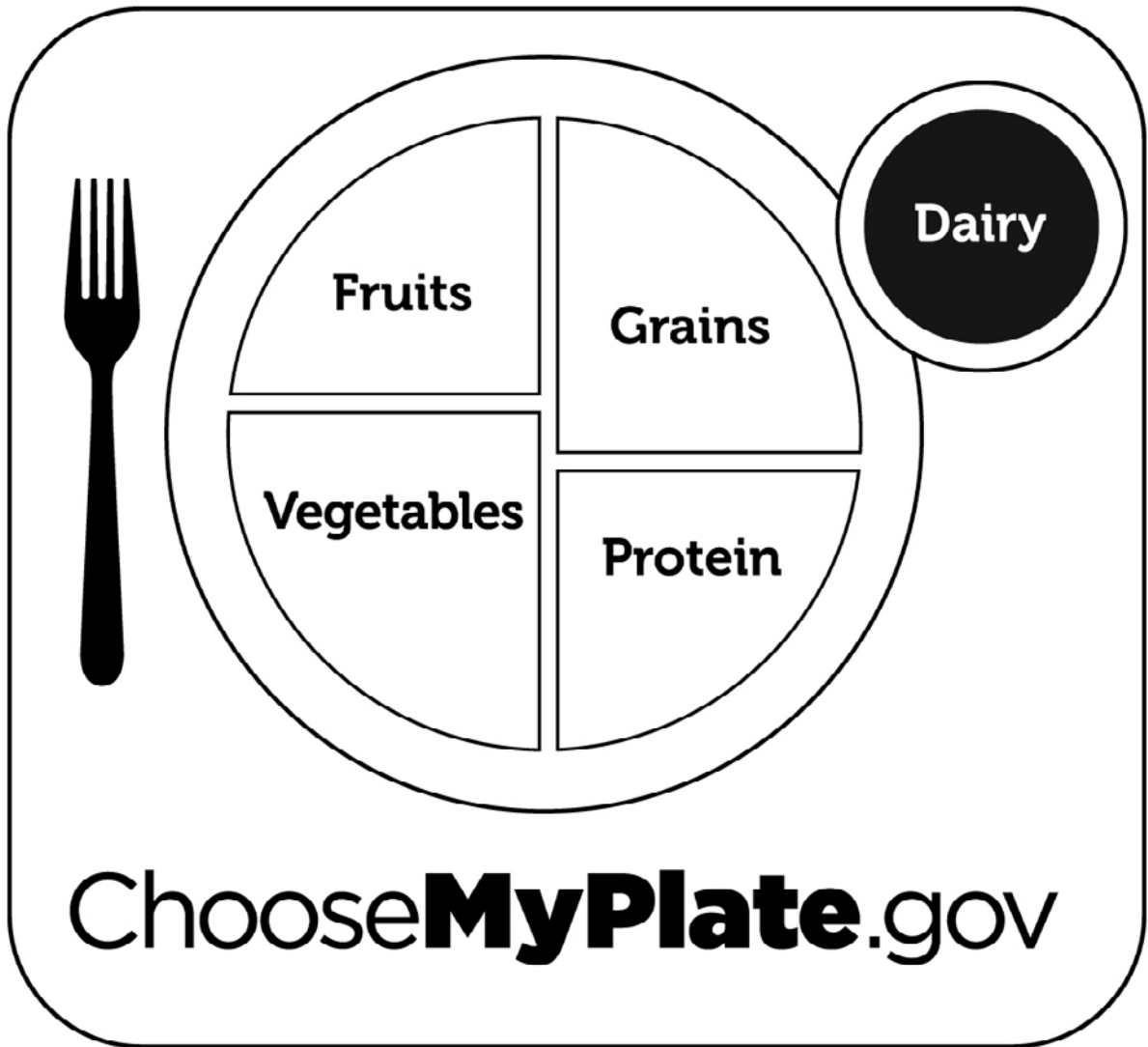
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Sugar Snap Peas

Nutrition Facts	
Serving Size	1 cup (100g)
Amount per serving	30
Calories	
	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
<i>Trans</i> Fat 0g	
Cholesterol 0mg	0%
Sodium 6mg	0%
Total Carbohydrate 7g	3%
Dietary Fiber 3g	10%
Total Sugars 3g	
Includes 0g Added Sugars	0%
Protein 2g	
Vitamin D 0mcg	0%
Calcium 37mg	3%
Iron 1mg	5%
Potassium 211mg	4%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

APPENDIX 8B: My Plate



APPENDIX 8C: Finger Salad Recipe

Finger Salad Recipe

Finger salads are small salads you can eat with your fingers!

Ingredients

Choose at least one large-leaf green, several vegetables, and additional toppings from the recommended ingredients in the list below.

Large-leaf greens	Vegetables	Additional toppings
red leaf lettuce	black beans (canned) drained and rinsed	cheese: cheddar, blue cheese, feta, jack
green leaf lettuce	broccoli, cut into small florets	nuts: peanuts, walnuts, sunflower seeds, pecans
romaine lettuce	carrots, peeled and chopped	olives
Swiss chard	corn, kernels cut from the cob	herbs: basil, cilantro, mint, parsley
cabbage	cucumber, chopped	salad dressing
	fresh peas, separated from their pods	salsa
	green beans, cut into small pieces	
	green onions, chopped	
	soybeans, separated from their pods	
	spinach	
	radishes, sliced	
	red bell pepper, chopped	
	sugar snap peas, cut into small pieces	
	tomatoes, chopped	

Place a large leaf of lettuce, Swiss chard, or cabbage on a small plate. Fill the large leaf with desired ingredients including other vegetables and additional toppings. This salad can be eaten with your hands like a taco or a lettuce wrap.

APPENDIX 8D: Goal Setting

Setting Goals for Healthy Choices

What are some things you can do to make it easier to make healthy choices?

What are some things your family can do to accomplish this goal?

Photo, Graphic, and Illustration Credits

Cover

- Plant—<https://www.flickr.com/photos/aresauburnphotos/2508019220>

Module 1: Introduction to Nutrition, Agriculture, and Gardening

- Maps—National Geographic Education MapMaker Interactive <http://education.nationalgeographic.com/education/mapping/?ar a=1>
- Flag of Australia—http://commons.wikimedia.org/wiki/File:Flag_of_Australia.svg
- Flag of China—http://commons.wikimedia.org/wiki/File:Flag_of_the_People%27s_Republic_of_China.svg
- Flag of India—http://commons.wikimedia.org/wiki/File:Flag_of_India.png
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- Flag of Kenya—http://commons.wikimedia.org/wiki/File:Flag_of_Kenya.svg
- Flag of Mexico—http://commons.wikimedia.org/wiki/File:Flag_of_Mexico.svg
- Flag of United States of America—http://commons.wikimedia.org/wiki/File:Flag_of_the_United_States.svg

Module 2: Getting Physically Active

- Body illustration—Lynn Chang

Module 3: Nutrients We Need

- Photos in Food Cards (Set I)—Jessica (Dusti) Linnell

Module 4: Food Math

- Photos of Breakfast Patties—Jessica (Dusti) Linnell

Module 5: MyPlate

- MyPlate Icon—<http://choosemyplate.gov/print-materials-ordering/graphic-resources.html>
- Character profile illustrations—Lynn Chang
- Food Photos—Jessica (Dusti) Linnell

Module 6: Food Labels

- Nutrition Facts Labels—Kelly Ho

Module 7: Consumerism

- Cereal Boxes—Erica Oberg and Lynn Chang
- Soccer Player Photo—Alf Inge Holsaeter, Free Images website, <https://www.freeimages.com/photo/soccerplayer-iii-1518081>
- Corn Flakes Photo—Fernando Kuri, Free Images website, <https://www.freeimages.com/photo/corn-flakes-1327097>
- Granola Photo—Creator unknown, Free Images website, <https://www.freeimages.com>
- Cereal Information Cards—Erica Oberg and Kelly Ho

Module 8: Making Healthy Snacks

- Food photos—Jessica (Dusti) Linnell
- Nutrition Facts labels—Hee Joo (Kristi) Kim and Kelly Ho

References

Module 1: Introduction to Nutrition, Agriculture, and Gardening

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Kittler, P., and K. Sucher. 2000. Cultural foods: Traditions and trends. Belmont, CA: Wadsworth Thomson Learning.

Module 5: MyPlate

USDA Center for Nutrition Policy and Promotion. 2011. MyPlate. USDA Choosemyplate.gov website, <https://www.choosemyplate.gov>.

Module 6: Food Labels

Food and Drug Administration (FDA). Changes to the Nutrition Facts label. United States Food and Drug Administration website, <http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/LabelingNutrition/ucm385663.htm>.

USDA Nutrient Database. 2016. USDA Food Composition Database website, <https://ndb.nal.usda.gov/ndb/>.

Module 8: Making Healthy Snacks

USDA Nutrient Database. 2016. USDA Food Composition Database website, <https://ndb.nal.usda.gov/ndb/>.

