DISCOVER

4-H AGRICULTURAL LITERACY

EXTENSION
UtahStateUniversity

DISCOVER

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Description

The Discover 4-H Clubs series guides new 4-H volunteer leaders through the process of starting a 4-H club or provides a guideline for seasoned volunteer leaders to try a new project area. Each guide outlines everything needed to organize a club and hold the first six club meetings related to a specific project area.

Purpose

The purpose is to create an environment for families to come together and participate in learning activities while spending time together as a multi-family club. Members will experiment with new 4-H project areas.

What is 4-H?

4-H is one of the largest youth development organizations in the United States. 4-H is found in almost every county across the nation and enjoys a partnership between the U. S. Department of Agriculture (USDA), the state land-grant universities (e.g., Utah State University), and local county governments.

4-H is about youth and adults working together as partners in designing and implementing club and individual plans for activities and events. Positive youth development is the primary goal of 4-H. The project area serves as the vehicle for members to learn and master project-specific skills while developing basic life skills. All projects support the ultimate goal for the 4-H member to develop positive personal assets needed to live successfully in a diverse and changing world.

Participation in 4-H has shown many positive outcomes for youth. Specifically, 4-H participants have higher participation in civic contribution, higher grades, increased healthy habits, and higher participation in science than other youth (Lerner et al., 2005).

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Utah 4-H

4-H is the youth development program of Utah State University Extension and has more than 90,000 youth participants and 8,600 adult volunteers. Each county (Daggett is covered by Uintah County) has a Utah State University Extension office that administers the 4-H program.

The 4-H Motto

"To Make the Best Better!"

The 4-H Pledge

I pledge: My HEAD to clearer thinking, my HEART to greater loyalty, my HANDS to larger service and my HEALTH to better living, for my club, my community, my country, and my world.

4-H Clubs

What is a 4-H Club? The club is the basic unit and foundation of 4-H. An organized club meets regularly (once a month, twice a month, weekly, etc.) under the guidance of one or more volunteer leaders. It elects its own officers, plans its own program, and participates in a variety of activities. Clubs may choose to meet during the school year, only for the summer, or both.

Club Enrollment

Enroll your club with your local Extension office. Each member will need to complete a Club Member Enrollment form, Medical History form, and a Code of Conduct/Photo Release form. (Print these from the www.utah4h.org website or get them from the county Extension office).

Club Officers

Elect club officers during one of your first club meetings. Depending on how many youth are in your club, you can decide how many officers you would like. This will typically include a president, vice president, pledge leader, and secretary. Other possible officers or committees are: song leader, activity facilitator, clean-up supervisor, recreation chair, scrapbook coordinator, contact committee (email, phone, etc.), field trip committee, club photographer, etc. Pairing older members with younger members as Sr. and Jr. officers may be an effective strategy to involve a greater number of youth in leadership roles and reinforce the leadership experience for all ages. Your club may decide the duration of officers (6 months, 1 year, etc.).

A Typical Club Meeting

Follow this outline for each club meeting:

- ☐ Call to order – President
- ☐ Pledge of Allegiance and 4-H Pledge – Pledge Leader (arranges for club members to give pledges)
- ☐ Song – Song Leader (leads or arranges for other club member to lead)
- ☐ Roll call – Secretary (may use an icebreaker or a "get acquainted" type of roll call to get the meeting started)
- ☐ Minutes of the last meeting – Secretary
- ☐ Business/Announcements – Vice President
- ☐ Club Activity – Activity Facilitator arranges this. It includes a project, lesson, service, etc. These are outlined by project area in the following pages.
- ☐ Refreshments – Refreshment coordinator
- ☐ Clean Up – Clean-up supervisor leads others in cleaning up

Essential Elements of 4-H Youth Development

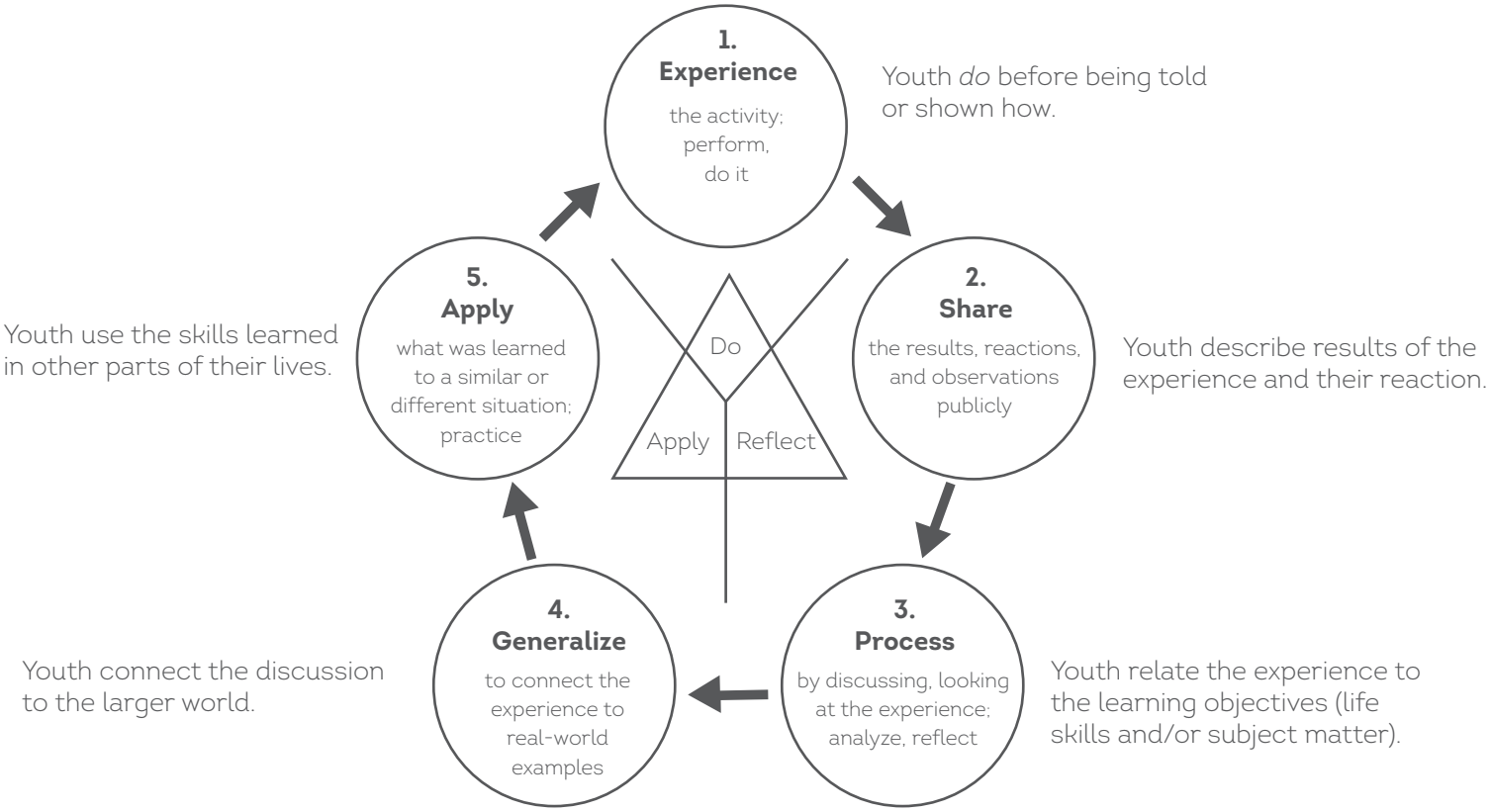
The essential elements are about healthy environments. Regardless of the project area, youth need to be in environments where the following elements are present in order to foster youth development.

1. **Belonging**: a positive relationship with a caring adult; an inclusive and safe environment.
2. **Mastery:** engagement in learning, opportunity for mastery.
3. **Independence:** opportunity to see oneself as an active participant in the future, opportunity to make choices.
4. **Generosity:** opportunity to value and practice service to others.

(Information retrieved from: http://www.4-h.org/resource-library/professional-development-learning/4-h-youth-development/youth-development/essential-elements/)

4-H "Learning by Doing" Learning Approach

The Do, Reflect, Apply learning approach allows youth to experience the learning process with minimal guidance from adults. This allows for discovery by youth that may not take place with exact instructions.



4-H Mission Mandates

The mission of 4-H is to provide meaningful opportunities for youth and adults to work together to create sustainable community change. This is accomplished within three primary content areas, or mission mandates - citizenship, healthy living, and science. These mandates reiterate the founding purposes of Extension (e.g., community leadership, quality of life, and technology transfer) in the context of 21st century challenges and opportunities. (Information retrieved from: http://www.csrees.usda.gov/nea/family/res/pdfs/Mission_Mandates.pdf)

1. **Citizenship:** connecting youth to their community, community leaders, and their role in civic affairs. This may include: civic engagement, service, civic education, and leadership.
2. **Healthy Living:** promoting healthy living to youth and their families. This includes: nutrition, fitness, social-emotional health, injury prevention, and prevention of tobacco, alcohol, and other drug use.
3. **Science:** preparing youth for science, engineering, and technology education. The core areas include: animal science and agriculture, applied mathematics, consumer science, engineering, environmental science and natural resources, life science, and technology.

Getting Started

1. Recruit one to three other families to form a club with you.
    a. Send 4-H registration form and medical/photo release form to each family (available at utah4h.org).
    b. Distribute the Discover 4-H Clubs curriculum to each family.
    c. Decide on a club name.
    d. Choose how often your club will meet (e.g., monthly, bi-monthly, etc.).
2. Enroll as a 4-H volunteer at the local county Extension office (invite other parents to do the same).
3. Enroll your club at the local county Extension office.
    a. Sign up to receive the county 4-H newsletter from your county Extension office to stay informed about 4-H related opportunities.
4. Identify which family/adult leader will be in charge of the first club meeting.
    a. Set a date for your first club meeting and invite the other participants.
5. Hold the first club meeting (if this is a newly formed club).
    a. See *A Typical Club Meeting* section above for a general outline.
        i. Your activity for this first club meeting will be to elect club officers and to schedule the six project area club meetings outlined in the remainder of this guide. You may also complete a-d under #1 above.
    b. At the end of the first club meeting, make a calendar outlining the adult leader in charge (in partnership with the club president) of each club meeting along with the dates, locations, and times of the remaining club meetings.
6. Hold the six project-specific club meetings outlined in this guide.
7. Continue with the same project area with the 4-H curriculum of your choice (can be obtained from the county Extension office) OR try another Discover 4-H Club project area.

Other Resources

Utah 4-H website: www.utah4-h.org

National 4-H website: www.4-h.org

4-H volunteer training:

To set up login:

http://utah4h.org/volunteers/training/

To start modules: (password = volunteer)

References

Information was taken from the Utah 4-H website (utah4h.org), the National 4-H website (4h.org), the Utah Volunteer Handbook, or as otherwise noted.

Lerner, R., M. et al. (2005). Positive youth development, participation in community youth development programs, and community contributions of fifth grade adolescents: Findings from the first wave of the 4-H Study of Positive Youth Development. Journal of Early Adolescence, 25(1), 17-71.

We would love feedback or suggestions on this guide; please go to the following link to take a short survey:
Go to https://goo.gl/iTfiJV or Click here to give your feedback

4-H AGRICULTURAL LITERACY CLUB *Meetings*

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DISCOVER
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4-H Club Meeting 1

What is Agriculture?

Supplies

- Four small plastic bins or four brown grocery bags labeled "Farm," "Factory," "Store," and "Natural Resources"
- Source Search cards
- My Farm Web graphics
- 30 pieces of yarn or string (approximately 6" long)
- What is Agriculture? poster
- White drawing paper
- Colored pencils
- Crayons
- Markers

INTRODUCTION

These activities will help club members understand the importance of agriculture in their daily lives and learn the sources of their food, clothing, and shelter.

PRIOR TO MEETING

- Download and print Source Search cards at: https://naitc-api.usu.edu/media/uploads/2017/09/19/source_search_1.pdf
- Download and print My Farm Web graphics at: https://naitc-api.usu.edu/media/uploads/2015/09/01/My_Farm_Web_graphics.pdf
- Purchase What is Agriculture? poster for $5 online at: https://agclassroomstore.com/what-is-agriculture/
- Laminate pieces (if possible), and then cut pieces apart

Activity #1

Source Search

SOURCE SEARCH

TIME: 20 MINUTES

1. Find an open space suitable for a relay race. Divide the students into two, single-file relay teams. Divide the laminated Source Search pictures by color. Place one set of cards face down in front of each team.
2. Place the tubs in a single line approximately 10 yards away from the relay teams. The tubs should face the participants.

3. Tell the students that they are playing a game called "Source Search." Their goal is to place each card in the tub that represents the "source" of that product. Do not elaborate on the meaning of "source;" keep the instructions simple. Students should identify the original source of each item.

4. Instruct students to take turns picking up the top card on the pile and dropping the card in the correct tub. They must return to their relay line and tag the next person in line before that person can pick up a card.

5. Give the "go" signal to begin the race. The team that drops all of their cards into the tubs first is the winning team. However, that status may change based on the accuracy of their choices!

6. At the end of the relay, gather students in a comfortable place to review their "answers." Use the Source Search Cards Reference List for explanations of the sources of the items. You may choose to keep "score" in order to determine the real winning team!

Activity #2

My Farm Web

MY FARM WEB

TIME: 20 MINUTES

1. Ask the club members, "After playing Source Search, where do you think agriculture takes place?" Help guide the students to come to the conclusion that most agriculture takes place on farms and ranches.

2. Gather members onto a large floor space suitable for creating a concept map (a visual representation of a brainstorming session) using the My Farm Web pictures and yarn pieces. Distribute the pictures to the members.

3. Place the photo of the barn in the middle of the floor. Direct members to look at their pictures and decide which items are grown or raised on a farm. These will be the photos of the sources of food, clothing, and shelter; e.g., a cow, a tree, an apple.

4. Instruct members to lay the appropriate pictures around the farm and connect each one to the barn picture using pieces of yarn. Tell students that they are building a "web" to represent a farm's resources and byproducts.

5. Now direct members to look at the remaining pictures. Can they identify the sources of the items on the pictures? Instruct them to link the byproducts with their sources using pieces of yarn.

6. As the pictures are placed in the web, ask members to describe aloud the relationships among the pictures. For example, a student might say, "Books are made of paper which comes from trees."

7. When the web is complete, challenge members to identify other sources and byproducts that could be added. For example, cherry pie is made from cherries grown on a farm/orchard.

SOURCE SEARCH

TIME: 15-20 MINUTES

1. Show club members the What is Agriculture? poster. Explain that Utah Agriculture in the Classroom (AITC)–a program that provides agriculture-related educational resources to teachers and students–has defined agriculture using the categories of "farm," "fabric," "food," "forestry," and "flowers." There are other categories that could be included such as "fish" or "fuel," but AITC recognizes these five words that encompass all aspects of agriculture.

2. Distribute the paper and drawing utensils and instruct members to draw their response to the question, "What is agriculture?" Give the students 10-15 minutes to complete their drawings.

3. Provide time for members to share their drawings and explain their definitions. If possible, you may want to consider posting the drawings in a gallery walk for review during a future club meeting.

Reflect

- Could we live without agriculture?
- If you're not a farmer or rancher, can you still be involved in agriculture?
- What agriculture-related careers besides a farmer or rancher can you identify?

Apply

- Think of a product that you have used whose source might be difficult to identify. Ask other club members if they can help you identify the source of that item.
- In the U.S., only two out of every 100 people work as farmers or ranchers. Discuss how we are going to feed an increasing population.

4-H MISSION MANDATES

Citizenship

Youth learn about the importance of farmers and ranchers in their communities.

Science

Youth explore ways to be savvy consumers in identifying the sources of their food, clothing, and shelter.

Healthy Living

Youth can identify food that is grown and raised on farms and ranches.

ESSENTIAL ELEMENTS

Belonging

Youth recognize that everyone must eat to survive. They work cooperatively in relay teams and in creating a farm web.

Independence

Each member must identify the sources of their food, clothing, and shelter.

Mastery

Members participate in activities and discussions and then use knowledge gained to produce their own definition of agriculture.

References and Other Resources

Source Search lesson retrieved from
http://utah.agclassroom.org/matrix/lessonplan.cfm?lpid=6&state_only=UT&search_term_lp=source%20search

My Farm Web lesson retrieved from
http://utah.agclassroom.org/matrix/lessonplan.cfm?lpid=298&state_only=UT&search_term_lp=farm%20web

4-H Club Meeting 2
Agriculture and the Environment

Supplies

- Story of Jack and the Beanstalk
- Beans (pole beans such as limas or scarlet runners are best)
- Potting mix
- 4" or 6" pots
- U.S. Soil Types Map
- Where in the U.S. Did My Food Come From? activity sheet
- Utah Agriculture Activity Map
- Utah Agricultural Products Questions activity sheet
- Rooftop Farming activity sheet

INTRODUCTION

In this meeting, members will explain how the interaction of the sun, soil, water, and weather in plant and animal growth impacts agricultural production. Members will recognize the natural resources used in agricultural practices to produce food, feed, clothing, landscaping plants, and fuel (e.g., soil, water, air, plants, animals, and minerals).

PRIOR TO THE MEETING

- Have all supplies gathered and activity sheets printed out for club use. Have paper to generate lists.

Activity #1
Magic Beans and Giant Plants

MAGIC BEANS AND GIANT PLANTS

TIME: 30 MINUTES

1. Tell or read club members the story of Jack and the Beanstalk.
2. Hand out some "magic" beans and discuss what club members think is the secret to growing tall bean plants.
3. Generate a list of general factors (light, temperature, water, growing space, etc.) that club members think plants need to stay alive. Discuss what specific conditions members think might result in the tallest bean plants. For example, if sunlight is a factor, perhaps members predict 10 hours of sunlight per day.
4. Tell members that they are going to explore how one of these factors affects bean growth.
5. Have each club member choose a factor and specific condition they want to explore such as 1 cup of water twice a day or 10 hours of light.

6. Once each member has chosen a factor and specific condition, discuss how they are going to observe changes daily for 4 weeks.

7. Instruct them to use a notebook or notebook paper to write the date and their observations each day for 4 weeks. Members can draw pictures of their plants along with measuring the height of the plants using a ruler.

8. Plant beans in pots.

9. After 4 weeks, have members bring observations and report back on what they observed.

Activity *#2*

What Land Works Best?

WHAT LAND WORKS BEST?

TIME: 40 MINUTES

1. Ask club members to help generate a list of the types of farms they have seen in Utah. The list can include farms that are nearby as well as those they may have seen on a road trip to other areas of the state. As each type of farm is listed, identify and list the food produced as well. Once the list is completed, explain that club members will be learning about different factors that determine where food is grown. Some of their food is grown close by, and other food is not.

2. Give each member a copy of the Where in the U.S. Did My Food Come From? activity sheet and have them complete it. Discuss the regional patterns and the following questions:

    a. What determines which crops are grown where? (water availability, climate, elevation, soil type) Share a map of U.S. soil types to illustrate the connection between crops and soils.

    b. Who determines what farmers grow? (consumers who influence demand, other farmers who influence supply, government officials who set quotas and subsidies, and farmers themselves who have preferences and traditions)

    c. Can you identify where the corn belt and wheat belt are located?

3. Generate a list of club members' favorite fruits and vegetables and ask them to identify which are grown in Utah and place a mark next to them.

4. Share some of the background information located at:

    https://www.agclassroom.org/teacher/matrix/lessonplan.cfm?lpid=372&author_state=0&search_term_lp=what%20land%20works%20best

5. Discuss the types of crops that are grown in Utah and why. List some of the climactic conditions that limit the types of crops that can be grown (availability of water, summer heat/winter cold, length of growing season, etc.). For example, bananas require tropical temperatures and much more water than is available in Utah.

6. Give each member a copy of the Utah Agriculture Activity Map to complete.

7. Display the Utah Agricultural Products Questions. Ask club members to discuss the answers as a group.

8. Conclude this activity by emphasizing the importance of preserving farmland in communities. Complete the Rooftop Farming activity sheet.

Reflect

- What are the most important factors for plant growth?
- Does the number of important plant factors for growth make a difference?
- Why does your state not grow every type of food?

Apply

- How do we get food that is not grown near us?

4-H MISSION MANDATES

Healthy Living

Youth learn about different farms in their state and what foods they produce.

Science

Youth learn about the factors needed to produce healthy plants by setting up their own bean plant experiment.

ESSENTIAL ELEMENTS

Belonging

Youth discuss and generate lists together in both activities.

Independence

Youth decide and conduct their own bean plant experiment to share with the group at a later meeting.

Mastery

Youth master the scientific process (stating a hypothesis, conducting an experiment, observing, presenting conclusions).

References and Other Resources

Magic Beans and Giant Plants lesson retrieved from http://utah.agclassroom.org/matrix/lessonplan.cfm?lpid=28&state_only=UT&search_term_lp=magic%20beans

What Land Works Best? lesson retrieved from http://utah.agclassroom.org/matrix/lessonplan.cfm?lpid=372&state_only=UT&search_term_lp=what%20land%20works%20best

4-H Club Meeting 3

Plants and Animals for Food, Fiber & Energy

Supplies

- Caring for the Land sheet
- Paper plates
- Beef jerky
- Grass clippings, weeds
- Items from Beef By-products list
- Video clip: Field Trip Series: Beef–Part 1
- Whole wheat bread
- White bread
- Wheat kernels
- White flour
- Whole wheat flour
- Jewel bag
- Wheat stems (some for each member)
- Anatomy of a Wheat Plant
- White Bread vs. Whole Wheat Grain video
- Wheat Kernel Dissection image (2 per member)
- Lined paper (3 per member)
- Brads
- Scissors
- Glue sticks
- Hand-turn grinder
- Wheat Milling video
- Items for tortilla recipe

INTRODUCTION

In this club meeting, members will learn to identify land and water conservation methods used in farming systems; learn how farmers meet the needs of animals; and how farmers care for land, plants, and animals. This club meeting will also show members the parts of a wheat plant and how it is processed into flour.

PRIOR TO MEETING

- Have all supplies gathered and activity sheets printed for club use.

Activity #1

Caring for the Land

CARING FOR THE LAND - WHY DO WE NEED FARMS?

Time: 15 MINUTES

1. Ask club members to describe in their own terms the words: farmer, environmentalist, and environmental activist.

2. Discuss as a club if farmers can be environmentalists. Use the following questions to help guide the discussion:

   a. Why would farmers be motivated to protect natural resources like soil and water?

   b. What motivates environmentalists to protect natural resources?

   c. What are some methods farmers use to protect soil and water quality?

3. Share the background information located at: https://www.agclassroom.org/teacher/matrix/lessonplan.cfm?lpid=136&author_state=0&theme_id=3

4. Divide the club into three groups and hand out one copy of the Caring for the Land activity sheet to each group. Ask each group to share what they discussed.

5. Discuss the following:

   a. Why do we need farmers?

   b. Who should decide how to use the land?

   c. How should we decide how to use the land?

Activity #2
Beef Basics

BEEF BASICS

TIME: 30 MINUTES

1. Discuss with club members what the two primary products cattle produce are called (milk and meat).

2. Just as there are different breeds or varieties of dogs, cats, and other animal species, there are different breeds or varieties of cattle. Do you think different breeds of cattle have different traits or characteristics that make them unique in producing either milk or meat?

3. Humans have been selectively breeding cattle for desirable traits since they were first domesticated around 10,000 years ago. Some traits that are commonly selected include hardiness, temperament, and even appearance. Most modern cattle breeds have been specialized to efficiently produce either milk or meat (not both). Based only on the pictures below, ask club members to guess which breed is typically raised for milk and which breed is typically raised for beef.

   Holstein

   When you think about cattle and cows, the iconic black and white Holstein is likely to be the first to pop into your mind. As you can see from the picture, the udder is very well developed, but the cow itself is very thin and bony. This is a milk breed, and it puts as much energy as possible into making milk instead of meat and fat.

Red and Black Angus

These breeds, named for their color and Scottish origins, are two of the most popular breeds of beef cattle in the U.S. This is partly because they are naturally polled (do not have horns). They do well on the range with little attendance, and they produce excellent quality, highly marbled meat. Notice that their bodies are thick and sturdy, giving them the ability to pack on the pounds.

4. Put out two plates with snacks on them. The first plate has grass and weeds and the second plate has beef jerky. Have club members line up behind their choices.

5. Did anyone choose grass? Why or why not?

6. Humans don't usually eat grass because it contains cellulose that cannot be digested by humans.

7. Discuss with club members the types of foods made with beef. We get these foods because of grass. Cattle graze pasture and rangelands where they eat the grass and convert the plant cellulose into beef.

8. Choose items from the Beef By-products list to put on a table. It can be found at: http://utah.agclassroom.org/matrix/lessonplan.cfm?lpid=284&state_only=UT&search_term_lp=beef%20basics

9. Tell members that all of these items have something in common. Have members create ten "yes or no" questions in an attempt to discover what all of the items have in common. Take turns asking these questions until someone is able to correctly state that all of the items are made from parts of cattle. Although meat and milk are the principal products that come from cattle, the items on the table are secondary products also known as by-products.

10. Sort items according to which part of the cow it comes from and/or whether it is edible or inedible.

11. To help members understand how beef gets from the pasture to the plate, watch the video clip from the Field Trip! Series, Beef – Part 1 and read the book Beef Cattle in the Story of Agriculture. It can be found at:

12. Review and summarize the following concepts:

    a. Cattle are produced in many states across the U.S.

    b. Beef cattle are raised for meat. They produce hamburgers, steaks, roasts, and other cuts of beef.

ENJOYING THE HARVEST

TIME: 60 MINUTES

1. Reference this lesson plan for videos and worksheets: http://utah.agclassroom.org/matrix/lessonplan.cfm?lpid=628&state_only=UT&search_term_lp=enjoying%20the%20harvest

2. Show club members a loaf of white bread and a loaf of wheat bread. Discuss what is the same and different about the two loaves of bread.

3. Show members a bowl of wheat kernels, a bowl of white all-purpose flour, and a bowl of whole wheat flour. The white flour was used to make the white bread and the whole wheat flour was used to make the whole wheat bread, but both types of flour were made from wheat kernels.

4. During this activity, club members will be exploring the process of making flour, known as milling, to understand how different types of flour are made from wheat kernels.

5. Give each club member a wheat stem, a jewel bag, and the Anatomy of a Wheat Plant Diagram.

6. Discuss the main parts of a wheat plant and have members locate the parts on the wheat stem.

7. Thresh the wheat to separate the seeds from the plant. Refer to the Wheat Grinding Tutorial video for instructions on how to thresh wheat by hand. Collect the wheat seeds in the bag.

8. Each kernel of wheat has three main parts–the bran, germ, and endosperm. All-purpose flour, used to make white bread, is made from the endosperm of the wheat kernel. The endosperm is separated from the bran and the germ and ground into flour. Whole wheat flour contains the whole kernel–the bran, germ, and endosperm.

9. Show the video White Bread vs. Whole Wheat Grain.

10. Provide each member with two copies of the Wheat Kernel Dissection Image, three pieces of lined paper, a brad, scissors, and a glue stick.

11. Have them cut out both of the Wheat Kernel Dissection images.

12. Trace one of the images onto three pieces of lined paper, cut each lined kernel out, and number each page.

13. Set one of the Wheat Kernel Dissection images aside and cut the bran, germ, and endosperm apart from the other.

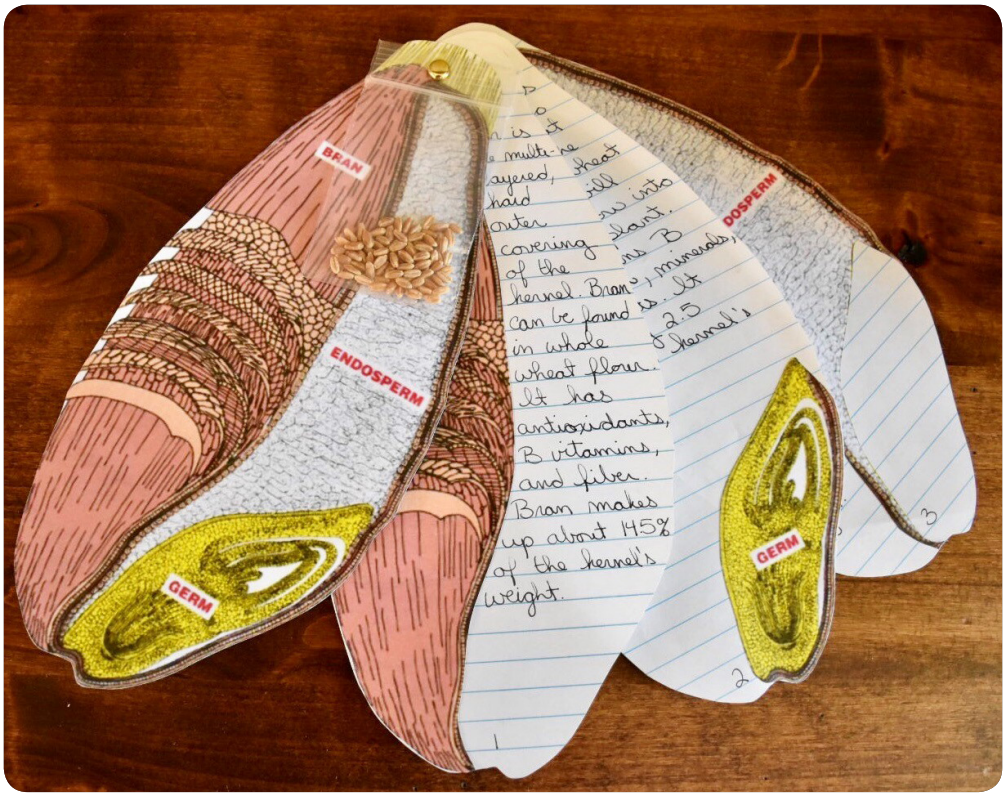
14. Glue the bran image on page 1 of the lined kernels, the germ on page 2, and the endosperm on page 3.

15. Write a description of each part of the wheat kernel on the corresponding page.

16. Layer the wheat kernel model with the jewel bag of wheat seeds on top followed by the intact Wheat Kernel Dissection image, page 1, 2, and 3.

17. Punch a hole in the top of the packet and attach with a brad.

18. In the end, it should look something like this:



19. Have members try and mill wheat seeds using a hand-turn grinder and save the flour.

20. Watch the video, Wheat Milling.

MAKING TORTILLAS

TIME: 60 MINUTES

This can be done as part of Activity 3 or as its own activity.

Ingredients for tortillas:

- 1-qt storage bag
- 1 1/2 c flour
- 1 t baking powder
- 3 T shortening
- 1/2 c hot tap water
- 1/4 t salt (or to taste)
- Rolling pin
- Griddle or frying pan
- Spatula

1. Using the flour that members have made, make tortillas in a bag. The recipe makes four tortillas.
2. Place four, salt and baking powder in bag. Close and shake just a few shakes to mix.
3. Add shortening and reclose the bag.
4. Work bag with hands until the mixture looks crumbly and there are no large pieces of shortening visible.
5. Open the bag, and add the hot tap water.
6. Knead in the bag until the dough is one large piece and the sides of the bag come clean.
7. Take the dough out of the bag, and divide into four pieces.
8. Put the pieces of dough on the table, and lay the bag on top of them. Let the dough rest for 15 minutes.
9. After resting time, roll or pat the dough into 8- to 10-inch circles. If dough is too sticky, you may add a little more four.
10. Place the circles on a griddle or frying pan heated to medium or medium high, and cook until dark brown spots appear.
11. Turn and cook on the other side until brown.

Reflect

- How should we decide how to use the land?
- How does beef get from the pasture to the plate?
- What is the difference between white and whole wheat bread?

Apply

- Knowing where your food comes from and how it gets to your plate is an important piece in being able to make smart decisions regarding land, plants, and animals in the future.

4-H MISSION MANDATES

Citizenship

Youth are taught and discuss the roles of farmers and environmentalists in protecting the land. Youth also discuss how they can protect the land.

Healthy Living

Youth discuss beef by-products and the differences between whole grain and non-whole grain flour and bread.

Science

Youth learn about beef's process from pasture to plate. This lesson also teaches the process of making flour and how we get flour from wheat plants.

ESSENTIAL ELEMENTS

Belonging

Youth discuss together and are encouraged to share ideas. In the last activity, all youth are needed to produce enough flour to make tortillas.

Independence

Youth get to practice forming their own ideas and making their own decisions.

Mastery

Youth master discussing their own ideas in small groups and sharing with the whole club.

References and Other Resources

Caring for the Land lesson retrieved from
http://utah.agclassroom.org/matrix/lessonplan.cfm?lpid=136&state_only=UT&search_term_lp=caring%20for%20the%20land

Beef Basics lesson retrieved from
http://utah.agclassroom.org/matrix/lessonplan.cfm?lpid=284&state_only=UT&search_term_lp=beef%20basics

Enjoying the Harvest lesson retrieved from
http://utah.agclassroom.org/matrix/lessonplan.cfm?lpid=628&state_only=UT&search_term_lp=enjoying%20the%20harvest

Supplies

- Food Group Puzzle
- Agricultural Commodities List
- Markers/Crayons
- Paper hands cut from template
- Popsicle sticks
- Tape
- MyPlate diagram
- MyPlate Daily Food Plan Checklist
- Measuring cups
- Dominoes
- Foods to measure for Activity 1
- Fruits and Veggies on MyPlate worksheet
- Imagine this… story
- Paper for brainstorming
- Lined paper
- Pencils
- Ingredients for healthy local snack activity

INTRODUCTION

In this club meeting, members will explore the necessary food components of a healthy diet using current dietary guidelines.

PRIOR TO MEETING

- Have all supplies gathered and activity sheets printed out for club use.

Activity #1

Give Me Five!

GIVE ME FIVE! AND MAKING HALF MYPLATE FRUITS AND VEGETABLES

Time: 20 MINUTES

1. Reference this link for lesson resources: http://utah.agclassroom.org/matrix/lessonplan.cfm?lpid=36&state_only=UT&search_term_lp=give%20me%20five
2. Ask club members if they have heard of food groups and ask them to share what they know.
3. Complete the Food Group Puzzle and review concepts taught. (There are 5 food groups, where each food is produced, common foods in each food group, and nutrients received.)
4. Food groups are collections of foods with similar nutritional benefits. Nutritional guidelines recommend daily servings from each group for a healthy diet.
5. Discuss each of the five food groups and how they make our bodies healthy. Ask members to name foods they like to eat in each group.

6. Go over the Agricultural Commodities List worksheet and star or circle with a bright color all the foods grown in your state (or region). Farmers and ranchers in our state grow thousands of different types of crops and many of them are foods we eat. If there are additional commodities grown or raised in your area, add them to the list.

7. Each day you should eat from the five food groups for a healthy diet–fruits, vegetables, grains, protein and dairy.

8. Give each member a paper hand, a popsicle stick, tape, and crayons or markers.

9. On one side of the hand, members write the name of a food group on each finger. In the center of the palm they write "Exercise Daily."

10. On the other side of the hand, members should write/draw a state-grown food for each food group on the corresponding finger.

11. Instruct them to write their favorite exercise on the palm area.

12. Cut out the hand and then tape on a popsicle stick.

13. Review the five food groups and have members share their favorite local foods that fit in each group.

14. Look at the MyPlate diagram and notice that fruits and vegetables take up half the plate with the vegetable group being slightly larger than the fruit group. The grains section is larger than the protein section. Each food group's size is slightly different because our bodies need different amounts from each food group to stay healthy.

15. Have members take 1 minute to write a quick list of foods that could be listed in each group and have them share their answers.

16. Discuss the following points:

    a. Fruits and vegetables are the only sources of vitamin C in the diet. Vitamin C helps the body heal wounds and lowers the risk of infection. It also helps keep the body from bruising and builds the tissue that holds muscles and bones together. Vitamin C is also known as ascorbic acid and helps the body absorb the iron found in foods and strengthens the immune system.

    b. Vitamin A serves several functions in the body. It helps maintain good vision, fight infection, support cell growth, and keep skin healthy. Leafy greens, carrots, sweet potatoes, squash, spinach, apricots, and green peppers are all excellent sources of vitamin A.

    c. Fruits and vegetables are a good source of complex carbohydrates, whose energy release is slow, gradual, and long lasting. Sugar provides quick energy, but its effects are short lived. This knowledge is important when choosing foods to eat before an athletic event.

    d. Fruits and vegetables contain fiber. Fiber helps move food through the body to prevent constipation and provide a sense of fullness.

e. Fruits and vegetables are quick, often ready to eat, easy to carry, and tasty foods to have as snacks. They provide the energy needed to function throughout the day.

f. Eating a variety of fruits and vegetables provides health benefits–people who eat more fruits and vegetables as part of a healthy eating style are likely to have a reduced risk of some chronic diseases.

g. Fruits and vegetables provide nutrients that help us grow and stay healthy.

h. They are naturally low in fat and calories. None have cholesterol.

17. Discuss the importance of eating a variety of vegetables from each of the subgroups throughout the week. Vegetable subgroup recommendations are given as amounts to eat WEEKLY. It is not necessary to eat vegetables from each subgroup daily. Most people need to eat more vegetables from the Dark-Green, Red and Orange, and Beans and Peas subgroups.

18. Ask members to name their favorite vegetables in each of the subgroups.

19. Review the amount of food needed from each of the five food groups each day using the attached MyPlate Daily Food Plan Checklist. Direct the members to identify what foods are measured in cups vs. ounces. (The amounts of foods are listed in cups for fruits, vegetables, and dairy, and in ounce equivalents for grains and protein foods.) To help members see what these foods might look like on a plate, use measuring cups for volume and two dominoes for one-ounce equivalents.

20. Show members what 1/2 cup of fruits, vegetables, and cooked grains look like. Display the food on a plate. Have the members measure 1 or 2 cups of food to compare. Instruct members to hold two dominoes in their hands. Explain that the two dominoes are equal to one ounce.

21. Have members complete the attached handout Fruits and Veggies on MyPlate.

Activity *#2*

My Life as a Fruit or Vegetable

MY LIFE AS A FRUIT OR VEGETABLE

TIME: 25 MINUTES

1. Reference this website for the lesson: http://utah.agclassroom.org/matrix/lessonplan.cfm?lpid=333&state_only=UT&search_term_lp=making%20half%20myplate%20fruits%20and%20vegetables

2. Read aloud a winning Imagine this... story that highlights the life of a fruit or vegetable. These stories can be found at https://learnaboutag.org/programs/contest.cfm. Members in this activity are going to write a fictional creative story about life as a fruit or vegetable. Each story should outline the life of one fruit or vegetable from the farm to the table.

3. Brainstorm a list of questions that members will need to answer as they write their story about the production or development of a specific fresh produce item. Questions that they may answer in their stories could include:

   - From where did I originate?

- What is my biological classification?
- To what other plants am I related?
- How am I planted?
- Where am I grown and why?
- How am I grown?
- What do I look like growing on the plant?
- How am I harvested?
- How am I transported?
- What health benefits do I offer?
- What potential problems could I cause, if any?
- How am I stored?
- How am I prepared/cooked?

4. Have each member select a fruit or vegetable that will be the main character or theme of their story.
5. Write a rough draft with resources found online and the list of questions. The story should be written in the first person narrative, with the fruit or vegetable telling the story.
6. Get help with editing from parents, club leaders, and fellow club members. (This could be done over several days or weeks with a reminder at each club meeting.)
7. Rewrite final version and illustrate each phase of the fruit's or vegetable's growth, development, and distribution.
8. Share finished stories at a future club meeting. Encourage club members to enter their finished stories and illustrations into the 4-H Fair

Activity *#2*

Healthy Local Snack

HEALTHY LOCAL SNACK

TIME: 10-15 MINUTES

1. Find a healthy snack recipe that highlights a locally grown fruit or vegetable. Talk about the process of this locally grown fruit or vegetable from farm to table.
2. Let club members help prepare the snack.

Reflect

- What is a food group, and why do we need to eat foods from multiple food groups?

Apply

- Youth can make the healthy snack at home and come up with other healthy snack options from locally grown produce.

4-H MISSION MANDATES

Healthy Living

Youth learn about the food groups and what nutritional benefits each one provides. They are given the opportunity to research a favorite fruit or vegetable and write a short story. The last activity provides an opportunity to explore locally grown produce being turned into a healthy, tasty snack.

Science

Youth learn how to measure different foods.

ESSENTIAL ELEMENTS

Belonging

Youth in this meeting are all given a chance to share favorite foods and choose a food to write about.

Independence

Youth are given the opportunity to choose a writing subject and make their own story surrounding that subject

Mastery

Youth learn how to measure different foods to see if they are getting enough of that food group. They also get the chance to prepare a healthy snack that they can make by themselves.

References and Other Resources

Give Me Five! lesson retrieved from
http://utah.agclassroom.org/matrix/lessonplan.cfm?lpid=36&state_only=UT&search_term_lp=give%20me%20five

Making Half MyPlate Fruits and Vegetables lesson retrieved from
http://utah.agclassroom.org/matrix/lessonplan.cfm?lpid=333&state_only=UT&search_term_lp=making%20half%20myplate%20fruits%20and%20vegetables

My Life as a Fruit or Vegetable lesson retrieved from
http://utah.agclassroom.org/matrix/lessonplan.cfm?lpid=336&state_only=UT&search_term_lp=my%20life%20as%20a%20fruit%20or%20vegetable

Supplies

- Large sheets of drawing paper
- Markers/Crayons
- Video: Follow Milk's Journey from Farm to Store
- Optional: UHT milk in boxes (available at grocery store)

For each group of 3 students:

- Plastic water bottle filled with water
- Building a Variable Rate Irrigation System handout
- 1 styrofoam cup
- 3 plastic cups (8 – 16 oz.)
- Straws in variety of sizes
- Various art supplies: scissors, tape, rubber bands, paper clips, rulers

INTRODUCTION

Club members will explore the components of a food commodity chain including the steps of the chain and the accompanying careers. They will also build a variable rate irrigation system and discuss the importance of technology used in agricultural production.

PRIOR TO MEETING

- Familiarize yourself with the commodity chain of milk found online at Dirt-to-Dinner Journey: MILK available at: https://www.dirt-to-dinner.com/a-journey-from-dirt-to-dinner-milk/

- You may wish to chill the boxes of UHT milk, although it is not necessary with shelf-stable milk that is processed at 280° F for 1-2 seconds.

Activity #1

Milk - From Farm to Table

MILK - FROM FARM TO TABLE

Time: 20 MINUTES

1. Explain to students that they are going to create a food commodity chain. A commodity chain is the network of people and activities required to get a product from its source to consumers. If possible, provide boxes of UHT milk as a snack to encourage students to visualize the process of this commodity chain.

2. Ask students to brainstorm aloud how milk gets from the farm to their dinner table. You may wish to write ideas on a whiteboard or large sheet of paper. Remind them that the following steps are the basic components of a commodity (food) chain:

    - Supply–raw materials supplied to manufacturing

- Processing–converting raw materials into finished products
- Distribution–methods used to deliver or transport a finished product
- Consumption–how a consumer uses a finished product

3. Using the ideas from their discussion, instruct students to use large sheets of drawing paper to illustrate the journey that milk takes to get from the farm to their table.

4. Show the video, Follow Milk's Journey from Farm to Store. Give students time to revise their commodity chains. Remind them to include careers in each component of the commodity chain.

5. Ask students what obstacles might occur at any point in the commodity chain and what impacts that might have on getting milk to consumers. Where is quality control (making sure milk is safe to drink) found in the chain?

Activity #2

Build a Variable Rate Irrigation System

BUILD A VARIABLE RATE IRRIGATION SYSTEM

TIME: 30 MINUTES

1. Divide students into groups of three. Distribute the following supplies to each group: Building a Variable Rate Irrigation System handout, water bottle, Styrofoam cup, plastic cups, straws, various art supplies.

2. Ask students what technologies are used in agricultural production. Answers might include GPS-enabled tractors, drones, irrigation systems, automated milking parlors, vertical farming, automated fruit pickers, etc. Explain that these technologies are used to increase yields to provide food for humans and animals.

3. Explain to students that they will build devices to vary water flow to crops just like in variable rate irrigation systems. Their goal is to build a system to divide 16 oz. of water into three cups with 2 oz., 6 oz. and 8 oz. of water in each cup, respectively.

4. Give students about 15 minutes to construct their devices. Allow students to test their designs with water and complete page 2 of the handout.

5. As a group, ask students whether or not their designs were successful. What could they have done to improve their designs? Why is this type of precision agriculture important in food production for humans and animals?

Reflect

- What are the steps of a food commodity chain?

- What skills did you and your group need to use in order to make a successful variable rate irrigation system?

Apply

- What careers are important in agricultural food production, and what skills must those people have? (Use the Living Science Career Cards–available in the Discover 4-H Agricultural Literacy Resource Tub–to show students the wide variety of careers possible in agriculture and natural resources.)

- What technologies do farmers and ranchers use to produce our food including both crop and livestock production?

- What challenges do farmers and ranchers face in producing food for the world?

4-H MISSION MANDATES

Citizenship

Youth learn about the careers involved in producing their food and recognize those people in their communities who contribute to food commodity chains.

Healthy Living

Youth can identify where quality control is found in a commodity chain and the impact that has on consumers' health. They also work in solving a design challenge that–on a larger scale–increases food production for the benefit of consumers and livestock.

Science

Youth identify the importance of science in food production and recognize the many scientific careers required to produce food.

ESSENTIAL ELEMENTS

Belonging

Youth work in groups to create solutions to practical challenges in food production. This reinforces the fact that many people with different ideas and skills are vital in addressing contemporary food challenges.

Independence

Each member must offer their ideas and skills to their group in order to solve a design challenge.

Mastery

Students create their solutions to two separate activities/challenges and must then revise their solutions in order to produce successful solutions.

References and Other Resources

Dirt-to-Dinner Journey: MILK available at:
https://www.dirt-to-dinner.com/a-journey-from-dirt-to-dinner-milk/

Lesson plan: Increasing Food Production with Precision Agriculture available at:
http://utah.agclassroom.org/matrix/lessonplan.cfm?lpid=513&state_only=UT&grade=6,7,8&search_term_lp=STEM

4-H Club Meeting 6

Food, Land & People

Supplies

- Book: Hungry Planet by Peter Menzel
- World Hunger Map
- Lunch Cards
- Book: What's for Lunch by Andrea Curtis
- Map of State Foods

INTRODUCTION

Club members will explore how cultural, economic, social, and geographic factors influence people's food choices around the world. They will learn basic hunger and food waste statistics and explore ways in which they can reduce hunger and waste.

PRIOR TO MEETING

- Download and print out the World Hunger Map. Found at: https://documents.wfp.org/stellent/groups/public/documents/communications/wfp275057.pdf?_ga=2.29695229.393006986.1522250794-1595827341.1521044753

- Use an online search to find a list of state foods (one site is https://en.wikipedia.org/wiki/List_of_U.S._state_foods). Have this available to share examples with club members.

- Download and print out the Map of State Foods. Found at: http://images.mentalfloss.com/sites/default/files/map-foods.png

- Print, laminate, and cut apart Lunch Cards. Found at: https://naitc-api.usu.edu/media/uploads/2018/04/06/Lunch_Cards.pdf

Activity #1

Hungry Planet

HUNGRY PLANET

TIME: 25 MINUTES

1. Using the online link or the Hungry Planet book, show students images of the food that people eat around the world.

2. Explain that each photo shows the food typically eaten by this family (note the country in which they live) and the approximate price of that food for one week.

3. Ask students to point out particular items of interest: How is food packaged? Are there more fruits and vegetables or more meat? What beverages do they consume?

4. What cultural, economic, social, and/or geographic factors help explain what these people consume?

5. Explain that in the United States, nearly 40% of food is wasted annually; it is thrown away uneaten, discarded after being left in refrigerators, or considered "ugly" and not purchased or eaten. In developing countries, that figure is also close to 40%, but much of that is food "loss"– damaged in transportation, storage, or processing. Eliminating food waste both domestically and globally can help reduce hunger. Ask students to brainstorm ideas on how they can reduce food waste.

6. Most scientists and agriculturalists agree that there is enough food to feed the world. Look at the hunger statistics on the World Hunger Map. If that is true, why are people hungry? What factors might explain the differences in the severity of hunger?

Activity #2

What's for Lunch?

WHAT'S FOR LUNCH?

TIME: 20 MINUTES

1. Ask club members what they like to eat for lunch. Allow the students to raise their hands and share some examples with you. Discuss where their food comes from. Did someone grow it? Was it produced from an animal?

2. Pass out one lunch card to each student. If there are not enough lunch cards for each student, have students work in pairs.

3. Explain that their lunch cards depict common lunch items eaten in other countries.

4. Ask students to read the clues on the cards and guess which countries eat each lunch item.

5. Using the available world map(s), have each student place their lunch card on the country where they think that food is eaten. Correct answers:

- United States: pizza, milk, fruit
- Japan: miso soup, fish
- France: cheese
- Canada: packaged treats, sandwiches
- Brazil: bananas, passion fruit juice, beans
- England: roast beef and gravy, Yorkshire pudding
- Russia: borsch, kasha
- Peru: guinea pig, quinoa
- Afghanistan: biscuits
- China: hot soup, bok choy
- Mexico: torta, toasted grasshoppers
- India: dal
- Kenya: porridge

6. If available, share the book What's for Lunch. Allow students to move their cards to the correct countries.

7. Ask them the reasons why each food is eaten in the country indicated. Have they eaten any of these foods? Are there foods they would refuse to eat? If so, why?

8. Ask students if these foods are good choices for healthy school lunches? Why or why not?

9. Discuss how agricultural science and technology in these countries influence what foods are available for student lunches.

Activity #3
Map of State Foods

MAP OF STATE FOODS

TIME: 10 MINUTES

1. Show students the Map of State Foods. Ask them how many of these foods they've eaten. Were students in the actual state when they ate a particular food? Were they visiting family or on vacation?

2. Ask students whether or not they agree with the food that is designated for the state in which they live. What other choices might be named as their state's food and why?

3. Does their state have an official food? It may be a state fruit, beverage, historic vegetable, cookie, or snack food!

Reflect

- What factors are responsible for people around the world being hungry?
- Name some lunch foods and the countries in which they are eaten.
- What state foods have you eaten?

Apply

- Think of a country that is facing food challenges today. What are the causes of those challenges?
- Which lunch foods seem odd to you? Which lunch foods that you eat might seem odd to a student from another country and why?
- Why would a state select a state food such as a snack, vegetable, or fruit? Who makes that decision?

4-H MISSION MANDATES

Citizenship

Youth learn about hunger and food waste–both locally and globally–and brainstorm ways in which they can contribute to the reduction of hunger and food waste.

Science

Youth discuss the influence that agricultural science and technology have on food availability.

Healthy Living

Youth identify foods that are eaten around the world and determine whether or not these foods are healthy choices for student lunches.

ESSENTIAL ELEMENTS

Belonging

Youth identify foods they've eaten with foods available nationally and globally. They discuss common factors that provide students around the world with healthy school lunches.

Independence

Youth make personal food choices to reduce food waste.

Mastery

Youth know hunger and food waste statistics. Youth identify foods eaten globally and why those foods are available in particular geographic regions.

References and Other Resources

Hungry Planet: What the World Eats. Retrieved from http://time.com/8515/what-the-world-eats-hungry-planet/

Lesson plan: What's for Lunch? Retrieved from http://utah.agclassroom.org/matrix/lessonplan.cfm?lpid=648&state_only=UT&content=ECONOMICS,GEOGRAPHY,HISTORY

More to Discover

Congratulations on completing your Discover 4-H club meetings! Continue with additional curriculum in your current project area, or discover other 4-H project areas. Check out the following links for additional 4-H curriculum.

1. www.discover4h.org
2. http://www.4-h.org/resource-library/curriculum/
3. http://utah4h.org/curriculum/

Become a 4-H Member or Volunteer

To **register** your Utah club or individuals in your club, visit and contact your county Extension office.

http://utah4h.org/about/

http://utah4h.org/join/index

For help registering in 4-H online, visit:

http://utah4h.org/staffresources/4honlinehelp

Non-Utah residents, please contact your local 4-H office:

http://www.4-h.org/get-involved/find-4-h-clubs-camps-programs/

Stay Connected

Visit Your County Extension Office

Stay connected with 4-H activities and news through your county Extension office. Ask about volunteer opportunities, and don't forget to register for your county newsletter. Find contact information for counties in Utah here:

https://extension.usu.edu/locations

Enjoy the Fair!

Enter your project or create a new project for the county fair. Learn about your county fair and fair judging here:

http://utah4h.org/events/index

Participate in Local or State 4-H Activities, Programs, Contests, or Camps

For Utah state events and programs, visit:

http://utah4h.org/events/index

http://utah4h.org/projects/

For local Utah 4-H events and programs, visit your county Extension office:

https://extension.usu.edu/locations

Non-Utah residents, please contact your local 4-H office:

http://www.4-h.org/get-involved/find-4-h-clubs-camps-programs/

Discover *Service*

Become a 4-H Volunteer!

http://www.youtube.com/watch?v=UBemO5VSyK0

http://www.youtube.com/watch?v=U8n4o9gHvAA

To become a 4-H volunteer in Utah, visit us at:

http://utah4h.org/join/becomevolunteer

Serve Together as a 4-H Club or as an Individual 4-H Member

Use your skills, passions, and 4-H to better your community and world. You are needed! Look for opportunities to help in your area or participate in service programs that reach places throughout the world (religious groups, Red Cross, etc.).

Hold a Club Service Project

USU Collegiate 4-H Club hosted "The Gift of Giving" as a club activity. Club members assembled Christmas stockings filled with needed items for CAPSA (Community Abuse Prevention Services Agency).

http://tinyurl.com/lu5n2nc

Donate 4-H Projects

Look for hospitals, nursing homes, or other nonprofit organizations that will benefit from 4-H projects. Such projects include making quilts for CAPSA or Primary Children's Hospital, or making beanies for newborns. During Utah 4-H State Contests, 40 "smile bags" were sewn and donated to Operation Smile.

Partner with Local Businesses

92,000 pounds of processed lamb, beef, and pork were donated to the Utah Food Bank in 2013 by multiple companies.

http://tinyurl.com/pu7lxyw

Donate Money

Clubs or individuals can donate money gained from a 4-H project to a worthy cause. A nine-year-old 4-H member from Davis County donated her project money to help a three-year-old battle cancer.

http://tinyurl.com/mqtfwxo

Give Us Your *Feedback*

Help us improve Discover 4-H curriculum. We would love feedback or suggestions on this guide. Please go to the following link to take a short survey: Click here to give your feedback or go to: https://goo.gl/iTfiJV