STEM Everywhere Every Day
ORTL 3
2018 - 2019
Workshop Goals

1. Participants will be able to describe a variety of STEM learning experiences that are related to daily routines and activities.

   Ohio's Early Childhood Core Knowledge and Competencies Revised
   **Area:** Learning Environments and Experiences
   **Subgroup:** Learning Experiences
   **Knowledge Concept:** Describes ways to develop and implement a daily schedule and routine that are appropriate for all children's learning and development. Describes ways to choose a curriculum that includes all domains in Ohio's Early Learning and Development Standards (p. 51).

   **OELDS: Birth To Kindergarten Entry**
   **Domain:** Cognition and General Knowledge
   **Strand:** Science Inquiry and Application
   **Topic:** Inquiry
   **PreK-K Standards:** Make careful observations (p. C39). Record observations using words, pictures, charts, graphs, etc. (p. C42).

2. Participants will be able to give examples of STEM resources that can supplement an early childhood curriculum.

   Ohio's Early Childhood Core Knowledge and Competencies Revised
   **Area:** Learning Environments and Experiences
   **Subgroup:** Learning Experiences
   **Knowledge Concept:** The strategies that create a rich environment that fosters curiosity, thinking and problem-solving.
   **Competency Level 1:** Supports and encourages children's participation in a variety of learning experiences that foster curiosity, thinking and problem-solving (p. 51).

   **OELDS: Birth To Kindergarten Entry**
   **Domain:** Cognition and General Knowledge
   **Sub-Domain:** Mathematics
   **Strand:** Measurement and Data
   **Topic:** Describe and Compare Measurable Attributes
   **PreK-K Standard:** Measure length and volume (capacity) using non-standard or standard measurement tools (p. C 24).
GERMS AND HANDWASHING

Objectives
Children will learn about the importance of using soap and water to kill germs.

Materials
- Book: Germs Are Not for Sharing
- Hand Lotion
- Glitter
- Handwashing Poster
- Good Handwashing

Lesson
Literacy: Read the book Germs Are Not for Sharing by Elizabeth Verdick.

Discuss the book with children. Talk about all the different ways that germs can be spread. Have children sit in a large circle. Pretend to sneeze in your hand and put some lotion on your hand. Sprinkle some glitter on your hand. Ask children to pretend that the specks of glitter are germs. Then, shake a child's hand and have the child look at their hand. Say "Look, she got my germs." Then have that child shake someone else's hand, and so on. Choose one child to wash but not dry his/her hands, Then have that child show the other children his/her hands (not all glitter should be gone yet). Next, have the child dry his/her hands with a paper towel and show the other children again. Explain that correct handwashing is important to get rid of germs that can make us sick.

Music and Movement

Germs Will Make You Sick
(Tune: Hokey-Pokey)
By Becky Valenick

Germs are really mean,
But they can't be seen.
They will make you sick,
Then you will feel "ick".
Use some soap and water,
Scrub your hands to get them clean—
Clean's what it's all about!
Discuss that washing and bathing prevents us from getting sick. Ask children when they need to wash our hands:
- before eating or touching food in any way (like if you're helping cook or bake)
- after using the bathroom
- after blowing your nose or coughing or putting your hands in your mouth
- after touching any pets or animals
- after playing outside
- after visiting a sick relative or friend

**Good Hand Washing**

Practice good hand washing with your children:

- Wet hands
- Apply soap
- Rub soapy hands for 20 seconds
- Scrub fingertips & between fingers
- Scrub forearm to just below elbow
- Rinse forearms & hands
- Use towel to dry hands & forearms
- Turn off water with towel & throw towel away

Sing the song Wash, Wash, Wash Your Hands while you wash the hands.

_Tune: “Row Your Boat”_

“Wash, wash, wash your hands
Play our handy game.
Rub and scrub, and scrub and rub.
Germs go down the drain.
Wash, wash, wash your hands
Play our handy game.
Rub and scrub, and scrub and rub.
Dirt goes down the drain.”

Here is another great website with more great resources:

**The Importance of Washing Your Hands**

**Pretend Play Hospital or Doctors Office**

Give your child supplies to play hospital. Children can be the patient, with make-believe broken bones, sore muscles, or cut skin. Props can include a stethoscope, cot, bandages, toy syringes (without needles), and old white shirts that can be worn as lab coats.

**Water Table**

Have children wash and dry toys in soapy water.

**Outdoor Game**

“Germ Tag.” One child is “it” and pretends to be a bad germ. Whoever he/she touches is “out.”

**Extensions**

Germs rhyme coloring page
Soap craft: Make a soap with an animal inside.
Videos:
https://www.youtube.com/watch?v=6EzhyPUNTw
https://www.pbslearningmedia.org/resource/8dac2e13-02ab-4c51-b157-c665f98ee079/healthy-me-healthy-habits/
https://www.pbslearningmedia.org/resource/d55dc5bb-4666-44b9-a00b-dc4cb45e0ae1/germs-germs-go-away-daniel-tigers-neighborhood/

Games:
http://pbskids.org/pco/games/scrub-a-dub Peg + Ca; matching size
http://pbskids.org/daniel/games/in-my-bathroom/
http://pbskids.org/fetch/games/germinator/index.html older kids, Fetch game to infect a spy with germs.
http://pbskids.org/fetch/games/water/game.html Fetch game to change water to steam or ice. Water the plants, steam the lunch, or ice the drink.

Books:
_Those Mean Nasty Dirty Downright Disgusting but Invisible Germs!_ By Judith Anne Rice
_Wash Your Hands_ By Tony Ross
_Germs, Germs, Germs Hello Reader_ by Bobbie Katz
_Why Do I Wash My Hands?_ By Angela Royston
_The Day I Forgot to Wash My Hands_ by Anna W. Badaus
Air Does Work!

Experiment! Find many different ways to make air do work!

- Blow air through a straw to move a cotton ball, soda can, leaf, marble or other object.  
  https://pbslearningmedia.org/resource/99ee1732-e64d-42b5-b708-c6a3927ba81/air-power
- Make it a game and try being the first to blow the cotton ball off the other side of the table.
- Blow a ball or marble down the hall in a race to the finish line (about five feet, not so far they hyperventilate)
- Use a fan, air cannon, hand pump, foot pump, or other means to use air to push a ball.  
  https://pbslearningmedia.org/resource/sesame-murray-experiment-air-cannon/murray-experiment-air-cannon-sesame-street
- Go outside and blow soap bubbles or make wind socks on a windy day  
- Use a zip lock bag under a small weight (a book) zip it mostly closed around a straw, and blow into the straw, inflate the bag and use air to lift the book!  
  https://pbslearningmedia.org/resource/d7652a01-bd98-48fa-8d43-d6cfa75df91a/putting-air-to-work
- Make a pinwheel and watch as air moves it around. Watch a video about windmills creating electricity, pumping water, or grinding wheat, etc.  
  https://pbslearningmedia.org/resource/bb09.res.vid.windfarm/wind-farm  
  this is a 14 second video showing modern windmills for electricity
- Make a simple parachute using a paper plate or a grocery bag as the parachute with a cup to hold some small weight, see how long it will float! Be safe when having children drop these from any height.  
 Blow on your hand. Can you make a soft breeze? A strong wind?

 Use your own wind power to make your pinwheel spin.

 Discover other ways to make your pinwheel spin.

 Can you make your pinwheel spin faster or more slowly? How?

 Adults: Please help your child make a pinwheel. Then let your child explore!
MAKE A PINWHEEL

You need: 🎨, a 🎀 and a 🖋️

1. Let your child color the pinwheel and the blank back of this sheet.
2. Cut out the pinwheel. Then cut along the diagonal, dashed lines.
3. Use the pushpin to poke holes in the center of the pinwheel and in the four corners. Twist the pin to make the holes smooth. This will help your pinwheel spin.
4. Stick the pushpin through each of the corner holes, through the center hole, then into the top of the pencil eraser. (See drawing.)
Engineering with Air:

Video:
https://pbslearningmedia.org/resource/sesame-murray-experiment-air-cannon/murray-experiment-air-cannon-sesame-street
https://pbslearningmedia.org/resource/phy03.sci.phys.matter.zlift/lifting-with-air/

Video of Galileo’s theory of falling bodies, how to slow them down to measure
https://pbslearningmedia.org/resource/nvmm-math-fallingbodies/galileos-falling-bodies/?

Books:
Engineers Build Models by Reagan Miller
Engineers Solve Problems by Crystal Sikkens

Math in Your Meal

Video

Games
http://pbskids.org/lunchlab/games/supermarket-manie
http://pbskids.org/sld/fablab_vegetablepatterns.html math patterns with food
http://pbskids.org/fetch/games/dishitout/game.html Engineering with food and Fetch
http://pbskids.org/arthur/games/supermarket/supermarket.html 3-5 match shapes and types of food

Books:
Eating Fractions by Bruce McMillan $3.39
Ten Red Apples by Pat Hutchins
The Milk Makers by Gail Gibbons
Full House: An Invitation to Fractions by Dayle Ann Dodds
Whole-y Cowl: Fractions are Fun by Taryn Souders
The Doorbell Rang by Pat Hutchins
If You Were a Fraction by Trisha Speed Shaskan
PIECE = PART = PORTION by Scott Gifford

Other activities:
Afterschool Adventure! Operation Brown Bag: Healthy-Eating Math Activities
https://d43fwuuh3sg51.cloudfront.net/media/media_files/f5904886-a703-4cc8-aaa0-0ebf71b7d651.pdf

Appetite for Fractions
http://www-tc.pbskids.org/lab/media/pdfs/MPT/AS8b_AppetiteForFractions_Activity.pdf
MyPlate, MyWins: Make it yours

Find your healthy eating style. Everything you eat and drink over time matters and can help you be healthier now and in the future.

Focus on whole fruits.

Move to low-fat or fat-free milk or yogurt.

Make half your grains whole grains.

Vary your veggies.

Vary your protein routine.

ChooseMyPlate.gov

Limit the extras.
Drink and eat beverages and food with less sodium, saturated fat, and added sugars.

Create ‘MyWins’ that fit your healthy eating style.
Start with small changes that you can enjoy, like having an extra piece of fruit today.
**Smell That Taste**

*When they smell vanilla? How about heaping?*

First, choose five different vanilla scents and create a scented jar for each. Fill the jars with different vanilla scents, such as vanilla extract, oil, and vanilla beans. Add a label to each jar with the name of the vanilla scent. Now, place the jars at the bottom of a bowl in a circle and ask the children to identify each scent by smell. Then, ask them to explain why they chose the scent they did. Finally, discuss the importance of different scents and how they can be used in various applications.

**Create a healthy, balanced meal**

*Test the difference now!*

Have the children create a healthy, balanced meal using the food groups. Then, ask them to explain why they chose the food groups they did. Finally, discuss the importance of a healthy, balanced meal and how it can help the body stay healthy.

**Food & Nutrition**

*Using the Materials:

Food & Nutrition fun starts with making food groups. We have designed this fun food pyramid that includes all of the foods we need to stay healthy. Your food group tray box is made with a chance of food, fruits, vegetables, and grains. We encourage you to make a healthy, balanced meal with these foods. Then, discuss the importance of a healthy, balanced meal and how it can help the body stay healthy.

*Mix & Match*

*Fruit Sticks*

*First, choose five different vanilla scents and create a scented jar for each. Fill the jars with different vanilla scents, such as vanilla extract, oil, and vanilla beans. Add a label to each jar with the name of the vanilla scent. Then, ask them to explain why they chose the scent they did. Finally, discuss the importance of different scents and how they can be used in various applications.*

**How many seeds? Which has the most seeds?**

*For children, choose a piece of plastic food group. Ask them what food group they think it is. Then, have them place a few seeds in the food group. Ask them to explain why they chose the food group they did. Finally, discuss the importance of different food groups and how they can help the body stay healthy.*

**Cont Mr Thorpe Seeds**

*Ask children to count all of the seeds in the bowl. Then, ask them what they learned about seeds. Ask them to explain why they chose the seeds they did. Finally, discuss the importance of seeds and how they can help the body stay healthy.*

**Food & Nutrition Library**

*Food & Nutrition fun starts with making food groups. We have designed this fun food pyramid that includes all of the foods we need to stay healthy. Your food group tray box is made with a chance of food, fruits, vegetables, and grains. We encourage you to make a healthy, balanced meal with these foods.*

*Mix & Match*

*Fruit Sticks*

**First, choose five different vanilla scents and create a scented jar for each. Fill the jars with different vanilla scents, such as vanilla extract, oil, and vanilla beans. Add a label to each jar with the name of the vanilla scent. Then, ask them to explain why they chose the scent they did. Finally, discuss the importance of different scents and how they can be used in various applications.*

**Try these ideas with your children:”

*Ask children to count all of the seeds in the bowl. Then, ask them what they learned about seeds. Ask them to explain why they chose the seeds they did. Finally, discuss the importance of seeds and how they can help the body stay healthy.*

**Cont Mr Thorpe Seeds**

*Ask children to count all of the seeds in the bowl. Then, ask them what they learned about seeds. Ask them to explain why they chose the seeds they did. Finally, discuss the importance of seeds and how they can help the body stay healthy.*
Afterschool Adventure!

OPERATION: BROWN BAG

Healthy-Eating Math Activities

Powered by a Ready To Learn Grant

This out-of-school resource was developed by Maryland Public Television.

The contents of this activity were developed under a grant from the Department of Education. However, those contents do not necessarily reflect the policy of the Department of Education and you should not assume endorsement by the Federal Government.
Introduction

It’s time for lunch! In this weeklong adventure, children will explore numbers and counting in the context of healthy eating. They will learn about the five food groups and create a healthy lunch using foods from each food group. Each section of this adventure is introduced by a video clip or online game that encourages children to explore math concepts and skills related to numbers, counting and cardinality.

Math Overview

This unit focuses on important skills for 4-5 year olds: writing numbers from 1 to 20 as well as counting objects in different sets, combining sets and counting the total number of objects. Refer to More About Math to learn additional information about these math topics as they relate to the Operation: Brown Bag activities.

Before You Begin

Familiarize yourself with health and nutrition information for preschoolers. The United States Department of Agriculture (USDA) provides valuable information to help parents and providers raise healthy eaters. Click the link below for more details.

Health and Nutrition Information for Preschoolers

Print and display the mini-poster that the USDA has provided for parents and caregivers. Follow the link below.

Healthy Eating for Preschoolers Mini-Poster
Handy Resource Guide

Get Ready! Your afterschool adventure includes videos, online games and mobile apps, hands-on activities and books. Use this resource chart to prepare ahead.

**WATCH**

**PBS KIDS Videos**

- Part 1: Super WHY! - Woofster Defines Ripe (1:54)
- Part 2: Curious George - Fruit Wrapper (1:26)
- Part 3: Super WHY! - Veggie Time for King Eddie (1:04)
- Part 5: Noah Comprende: Hot Milk (3:04)

**EXPLORE**

**Hands-on Activities**

- Brown lunch bags (one for each child)
- Healthy Foods coloring pages (two for each child)
- Scissors
- Markers or crayons
- Healthy Eating for Preschoolers Mini-Poster
- One yellow and one green banana, plate, knife and napkins (optional)
- Operation Brown Bag Parent Letter (one for each child)

**PLAY**

**Online Games & Mobile Downloads**

- Part 2: Curious George: Apple Picking
- Part 3: Sid the Science Kid - Vegetable Harvest
- Part 4: Curious George - Meatball Launcher
- Part 5: Freddy's Carnival Game
- Part 6: Sid the Science Kid - Mix It Up

**READ**

**Related Books**

- Part 1: Ten Red Apples by Pat Hutchins (optional)
- Part 5: The Milk Makers by Gail Gibbons (or another book about milk and dairy foods)
Part 1: Introducing the Challenge (10 minutes)

Leader: OK, kids! It’s time for a PBS KIDS Adventure! Today’s challenge is called Operation: Brown Bag. Can anyone guess what this challenge is about?

Pause to allow children to answer.

Leader: This challenge is about lunch! You’ll learn about healthy eating and will create your own healthy “lunch.”

I’m going to give you a brown bag—that’s your lunch bag—and by the end of the week, everyone will have filled theirs up with healthy lunch foods.

We’re going to call on our friends from PBS KIDS to give us some hints and help us out as we complete...Operation: Brown Bag!

Show and discuss the Healthy Eating for Preschoolers Mini-Poster with the children. Begin by asking if they have heard of the five food groups. Name each group, and ask children to come up with an example. Confirm their correct responses and add a few more. Then review the five food groups one last time.

Leader: We’ve learned that there are five food groups.

The fruit group includes foods like apples, oranges, grapes and strawberries.

The vegetable group includes foods like carrots, tomatoes, broccoli and potatoes.

The grain group includes foods like bread, pasta, rice and cereal.

The protein group includes foods like meat, fish, eggs and nuts.

The dairy group includes foods like milk, yogurt and cheese.

Are there any questions?

Pause to answer relevant questions.

Leader: To stay healthy, it is important to eat a variety of foods from all of the food groups. We’re going to find out more about the food groups so that we can build a healthy lunch. Let’s get started!
Part 2: Counting Fruit (30 minutes)

PLAY

Curious George: Apple Picking

Children will help Curious George pick the correct numbered apple to fill in the gap in the number line.

Begin by taking the children to your computer station and accessing the introductory page for "Apple Picking." Have the children sit or stand around the screen so they can all see.

Leader: To help you with your brown bag adventure, we're going to play a Curious George game about fruit! We'll play it once together, and then we'll divide into small groups so that each group can take a turn playing.

What kind of fruit does George have in his backpack? How many apples did he drop on the ground?

Help the children count to four, and then introduce the directions.

Leader: Now let's listen and the Man with the Yellow Hat will tell us what to do.

Click "Play," listen to the directions, and demonstrate to the children how to play the game. Then allow them to play in small groups.

After each group plays the game, gather all of the children in an area where they are able to color and cut out pictures.

Leader: Curious George likes apples—and lots of other fruit, too! We know that the fruit group is one of the five food groups that we need to make a healthy lunch. Let's all add some fruit to our brown bags. I'm going to hand out some blueberries for you. We'll color them, and then cut them out and add them to our brown bags.

Hand out the Healthy Foods coloring pages, and help children color and cut out their blueberries. Ask them to count how many blueberries they have altogether. Then ask the children to add them to their bags.

Keep Going! If you have more time, explore the activities on the next page with the children.
**Part 2: (continued)**

**WATCH**

*Super WHY! - Woofster Defines Ripe (1:54)*

Ask the children if they’ve ever heard someone use the word “ripe” when talking about fruit. Then play this Super WHY! clip to see how Woofster uses his Doggie Dictionary to define the word “ripe.” As children watch, ask them how the “ripe” vegetables are different from the “not ripe” vegetables.

*Curious George - Fruit Wrapper (1:25)*

How does ripe fruit attract animals—and why is this important? Show this video clip for some clues.

**EXPLORE**

*Banana Taste Test*

Show your children a green (unripe) and yellow (ripe) banana. If possible, cut up the bananas, and allow them to taste a slice of each. Which do they prefer? Have children describe the tastes of both the green and yellow banana (for example, sweet, bitter).

**READ**

*Ten Red Apples by Pat Hutchins*

A horse, cow, pig, duck and an assortment of other farm animals eat apples from the farmer’s tree.

As you read, ask: How does the number of apples on the tree change after each animal visits the tree? (Each time an animal eats from the tree there is one fewer apple.) After you've read the entire book, ask: How many animals ate from the tree? How many different ways can we figure out that answer? (Draw ten apples and circle one for the farmer. With children, count the remaining apples. That’s how many animals ate from the tree?)
Part 3: Counting and Combining Veggies (30 minutes)

PLAY

Sid the Science Kid - Vegetable Harvest

Gabriela’s vegetables have grown and are ready to be picked! In this game, children will help her count and combine different sets of vegetables.

Begin by taking the children to your computer station or interactive whiteboard. Have them sit or stand around the screen so they can all see.

Leader: You have some fruit in your brown bag lunch. But there are four other food groups to learn about to create your healthy lunch! One of those groups is the vegetable group. Let’s play a game about vegetables. We’ll play it together once, and then we’ll divide into small groups so that each group can take a turn playing.

Listen to the directions, and demonstrate to the children how to play the game. You should play at least two “rounds” — the first round will ask you to count one vegetable, and the second round will ask you to count two different types of vegetables.

Help children come up with an answer for the second round by counting both types of vegetables. Then ask them if the total number of vegetables changes if you count the other type first. Have children make a prediction, and then count the vegetables in the reverse order—the answer will be the same. Emphasize that no matter which vegetable is counted first, the total number of vegetables will always be the same.

Leader: Now it’s your turn to play!

Allow children to play in small groups. As children play, encourage them to say the name of each object as they count. For example: 1 carrot, 2 carrots, 3 carrots and 1 tomato, 2 tomatoes, 3 tomatoes—or when counting the total number of vegetables, 1 vegetable, 2 vegetables, 3 vegetables.

Leader: We saw lots of different types of vegetables in this game. And we know that vegetables are one of the five food groups. Let’s all add a vegetable to our brown bags. I’m going to hand out some carrot sticks for you. We’ll color them, and then cut them out and add them to our brown bags.

Again, bring the children to an area where they will be able to color and cut out pictures. Hand out the Healthy Foods coloring pages, and help children color and cut out their carrots. Ask them to count their carrot sticks. For example: 1 carrot stick, 2 carrot sticks, etc. Then ask them to count how many items of food they have in their brown bag altogether. For example: one item, two items, etc. If the children are having trouble counting to 18 on their own, you may count as a whole class.

Keep Going! If you have more time, explore the activities on the next page with the children.
Part 3: (continued)

WATCH

**Super WHY! - Veggie Time for King Eddie (1:04)**

Vegetables are delicious—but is it good for us if we only eat veggies? Watch this video clip with children to remind them that we need to eat a variety of foods from the five food groups in order to be healthy.

EXPLORE

**Categorizing Vegetables by Color**

Divide a blank piece of paper into four sections. With the children, label the sections Green, Yellow, Red and Orange by coloring in a small area or by writing the color words. Ask children to place the vegetables they cut out of construction paper onto the correct color category. Practice counting the number of vegetables in each color category, as well as the total number of vegetables. Challenge children to write number sentences with addition and equal signs to represent the total number of vegetables.

**Add it Up!**

Gather two sets of objects. For example: crayons and markers. As a class, ask children to count the number of objects in each set, and write the two numbers for them to see. Next, combine the sets. Have students count the objects together. Then write the numbers into a number sentence, taking the time to explain the meanings of the addition and equal symbols. For example: 4 crayons + 6 markers= 10 writing tools.

Ask the children: Does the total number of objects change if I count the markers first instead of the crayons? With your students, count both ways and compare their numbers. Then encourage children to gather their own sets of objects from around the room, combine the sets, and count the total number of objects. Challenge the children to write number sentences with addition and equal signs to represent their objects.
Part 4: Investigating Grains and Protein (30 minutes)

PLAY

Curious George - Meatball Launcher

George is working in Chef Pisghetti's restaurant, and is using the new meatball launcher! Children will help him add the right number of meatballs to each plate so they can match the number written on the order.

Take the children to your computer station and access the introductory page for Meatball Launcher. Have the children sit or stand around the computer so they can all see.

Leader: You now have a piece of fruit and a vegetable in your brown lunch bag. But we need to eat foods from ALL the food groups to be healthy, right? How many more food groups are there? Do you remember what they are?

Pause to allow children to answer.
(You may wish to point out the Healthy Eating for Preschoolers Mini-Poster if children need help remembering.)

Leader: We still have the grain group, the protein group and the dairy group to go. This game is about spaghetti and meatballs. Which two groups are spaghetti and meatballs from?

Pause to allow children to answer.

Leader: That’s right! Spaghetti is from the grain group, and the meatballs are from the protein group. You can also see a little bit of tomato sauce on this plate of spaghetti and meatballs. That's from the vegetable group.

Now let’s play the game. We’re going to play it right here together once, and then we’ll divide into small groups so that each group can take a turn playing. Let’s listen and the Man with the Yellow Hat will tell us what to do.

Click ‘Play,’ listen to the directions, and demonstrate to your children how to play the game. Then allow them to play in small groups. As children play, encourage them to count aloud. Point to the number on the screen and ask them, How many meatballs do you need on this plate? Then ask, How many more meatballs do you need to reach that number?

You may also work with children to write the number of meatballs they launch on a piece of paper as they go from plate to plate. When all the children have completed the game, ask them, Which plate has the greatest number of meatballs and which plate has the least number of meatballs?

Leader: This game was about spaghetti and meatballs. They’re from the grain and protein groups. Let’s add something from the grain and protein group to our lunch bags.

Take the children back to an area where they will be able to draw and cut out pictures. Hand out the coloring pages, and help children color and cut out their turkey sandwich and add it to their bags. Ask if anyone can remember how many food items they had in their bags before (18), and how many they would have if they added one sandwich. Starting from one, help the children count all the items in their bags to verify that the correct number is 19.

Keep Going! If you have more time, explore the following activity on the next page with the children.
Explore

Order Up!
Ask the children if they have ever eaten spaghetti and meatballs. If they were at Chef Pigs' restaurant, how would they order their spaghetti? With sauce? Without sauce? With meatballs and sauce? With parmesan cheese on top? See how many combinations children can come up with. Create a tally chart to record how many children like each version. Tally mark by sets of five, and then compare which "orders" are most and least popular.

Example:

<table>
<thead>
<tr>
<th>Sauce</th>
<th>Butter</th>
<th>Sauce &amp; Meatballs</th>
<th>Sauce &amp; Cheese</th>
<th>Butter &amp; Cheese</th>
<th>Sauce, Meatballs &amp; Cheese</th>
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</thead>
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</table>
Part 5: Say Moo! (20 minutes)

READ

The Milk Makers by Gail Gibbons

Many children drink milk every day without knowing much about where it comes from. This book explains how we get milk and shows how many different types of dairy products start out as milk.

Gather the children together and ask them to name the four food groups that you have investigated together so far (fruits, vegetables, grains and protein). Then ask if anyone can remember what the final food group is (dairy). Tell the children that you’re about to read a book that will explain a little bit more about the dairy group.

If you don’t have access to a copy of The Milk Makers, there are many other books you can choose from. Try Kiss the Cow by Phyllis Root or Out and About at the Dairy Farm by Andrew Murphy.

After reading, ask the children what their favorite dairy foods are. Then pass out the coloring pages and have children color and cut out the carton of milk. Remind children that there were 19 items in their bags the last time you counted, and ask how many there will be when they add their cartons of milk. Starting from 1, help the children count all the items in their bags to verify that they now have 20 items in their lunch bags.

Keep Going! If you have more time, explore the following activities with the children.

PLAY

Freddy’s Carnival Game

Help children count the milk bottles (up to 20) and choose the appropriate matching number. This game is also appropriate for 4-5 years olds.

WATCH

Noah Comprende: Not Milk (3:04)

Noah hits the road in search of leche (milk) for his abuela (grandmother). Watch the video and discuss the foods the children like to eat with their families.
Part 6: Putting It All Together (10 minutes)

Visual Aide:

Healthy Eating for Preschoolers Mini-Poster

Children will look at the poster and describe how they built a healthy lunch, with one item from each of the five food groups.

Gather your children in a circle on the floor or around a table for the conclusion of their investigation.

Leader: You did it! You learned about all five food groups, and put together foods from every food group to make a healthy lunch.

Pause to allow children to review their lunches. Have them point to the food groups on the poster to show where each of the healthy foods belong.

Leader: Great job, kids! You learned about healthy eating and created your own healthy meals. Operation: Brown Bag...complete!

Before the children leave for the day, print out the following handouts and staple copies to each child’s lunch bag to take home.

Operation: Brown Bag Parent Letter

Healthy Foods coloring page

Keep Going! If you have more time, explore the following activities with the children.

PLAY

Sid the Science Kid - Mix It Up

In this game, children are invited to create a meal with one item from each of the five food groups.

The children gained lots of practice this week completing the Operation: Brown Bag activities. Now encourage them to come up with new and different combinations for their healthy meals. (In this game, the protein group is called the "meat and beans" group.)

Brown Bag Vocabulary

Discuss with the children any new vocabulary words they learned over the course of their challenge (add, total, plus, equals, variety, ripe), and encourage the children to practice using them in sentences.
FOR YOUNG CHILDREN
TEACHING HANDWASHING

Handwashing really is our best defense against many kinds of bacteria and viruses that cause infection. Children typically don’t like to take the time to wash their hands, but there are ways you can make it fun using games, songs and teaching them about the germs.

TEACHING TIPS
Young children, Toddlers and preschool age, learn through their senses: touching, seeing, hearing, tasting, smelling. Because germs can’t be seen, felt, tasted, or heard, making them tangible through play is a great way to teach the importance of proper handwashing.

- Singing handwashing songs
- Drawing and coloring
- Building and crafts
- Telling stories—read books about washing and germs.

We have gathered some resources available online to help you make germs more real for them. We also added a few examples on the back.

HELP THEM WASH & MAKE IT EASY

1. Supervise their handwashing after they use the toilet and before they eat.
2. Let them see you wash your hands throughout the day and wash your hands with them.
3. Put handwashing reminders at their eye level.
4. Every time they wash their hands, reward them until it is a habit.
5. Keep a stool by the sink so that they can reach easily.

ACTIVITIES & TOOLS

Henry the Hand — www.henryhand.com
Tool kit that includes curriculum, science projects and more. In addition the site offers interactive handwashing songs and videos, coloring pages, and posters.

Scrub Club — www.scrubclub.org
Interactive handwashing games and songs, computer wallpaper and screensavers and coloring sheets and posters.

Glo Germ — www.glogerm.com
Free downloadable worksheets for kindergarten through 6th grades in English and French. Black UV lights, Glo Germ lotion and powder are available to buy from this company.

Handwashing ToolKit — www.health.state.mn.us/handhygiene/curricula/index.html
Build your own toolkit for teaching ages 3-6, with activity ideas, discussion questions and book list.

Ideas to encourage handwashing, including bulletin board tips, songs, jokes, finger plays and others.
TEACHING HANDWASHING TO YOUNG CHILDREN

ACTIVITY IDEAS

ACTIVITY IDEA 1: EVERYTHING YOU TOUCH

You need: White paper, crayons, and tape.
1. Have children draw and color pictures of small germs on paper. Make up your own germs or print some from www.scrubclub.org.
2. Have children tape the pictures around the room on everything they touch over a 1/2 hour.
3. Look around at the room at the end of that time and talk about how they themselves pick-up and spread germs like these to all of these things.

ACTIVITY IDEA 2: GLITTER GERMS
(Source: Texas AgriLife Extension Service)

You need: Shaker of glitter, soap and water, sink or bowl, and towels.
1. Put a small amount of glitter on children’s hands.
2. Put children into 2 groups: have group 1 wash their hands with soap and group 2 without soap.
3. Show how soap gets rid of the glitter (germs) better than water alone.
4. Next, put glitter in your hand and then touch the children’s hands, shoulders, hair, etc. to show them how the glitter was transferred. Explain how germs are also transferred in this way.

ACTIVITY IDEA 3: GERMS ARE MOBILE

You need: Scissors, glue, paper hole punch, string, 2 wire hangers, crayons and white cardstock paper.
1. Have children draw pictures of germs on cardstock and color them—about 16.
2. Label types of common germs on the bottom — E. coli, flu, Shigella, Crypto, Staph, Listeria and Salmonella.
3. Cut out the germs, glue 2 back-to-back (for all of them), for a total of 8 2-sided germs.
4. Put one hanger inside the other crosswise, then twist together at the top.
5. Punch a hole in the top of each germ pair and tie on a string.
6. Tie on the germs spaced out along the hangers at different lengths.
7. Talk about the different germs, then hang up at a visual reminder. Hang near the sink if possible.

ACTIVITY IDEA 4: SING-A-LONG

Sing to Row, Row, Row Your Boat, which takes the right amount of time for proper handwashing — 15-20 seconds.
Wash, wash, wash my hands / Make them nice and clean.
Rub the bottoms, and the tops / And fingers in between.

BOOKS FOR YOUNG CHILDREN

Buddy Bear’s Hand Washing Trouble - Marjorie T. Cooke
Wash Your Hands! - Tony Ross
Germs Make Me Sick - Melvin Berger
The Ten Potato Scrub - Marjorie T. Cooke
Your Skin and Mine - Paul Showers
Germs on Their Fingers (also in Spanish) - Wendy Wakefield Ferrin
Those Mean Nasty Dirty Downright Disgusting... But Invisible Germs - Judith Anne Rice
Make meal time family time.
Talk together.
Eat together.
Cook together.

Be patient with your child.

Focus on the meal and each other.

and candy are only occasional treats.

Be mindful of sweet drinks and other foods.

Habits that will last a lifetime.

Choose foods that are heart smart.

Offer a variety of healthy foods.

Healthy eating.

Get your child on the path to healthy eating.
There are many ways to divide the Daily Food Checklist into needs. For example, foods like nuts, seeds, or other hard foods, small pieces of fruits or vegetables, or whole foods like hot dogs, grapes, and raw carrots need to be cut into pieces that are smaller than the size of a palette. The Daily Food Checklist also has a section for children aged 4-5 years old, and foods like milk or yogurt need to be included in their meals.

### Daily Food Checklist

<table>
<thead>
<tr>
<th>Food Group</th>
<th>Food Items Example</th>
<th>Servings</th>
</tr>
</thead>
</table>
| Dairy      | 1/4 ounce cheddar cheese, 1/4 cup milk | 2 
|             | 1/4 cup cooked beans or peas (lightly drained) | 2 - 2 1/2 cups |
|             | 1/4 cup cooked cereal, 1/4 cup ready-to-eat cereal | 2 |
|             | 1/4 cup cooked rice, 1/4 cup ready-to-eat cereal | 2 - 4 ounces |
|             | 1/2 cup rice | 2 |
|             | 1/4 cup of fruit | 2 - 5 ounces |
|             | 1/2 cup of vegetable | 2 - 5 ounces |
|             | 1/2 cup of grain | 2 - 5 ounces |
|             | 1/2 cup of fat-free milk or yogurt | 2 |
|             | 1/2 cup of vegetable juice | 2 - 2 1/4 cups |
|             | 1/2 cup of mixed green vegetables | 1 |
|             | 1/2 cup of mixed fruit | 1 |
|             | 1/2 cup of mixed nuts or dried fruit | 1 |
|             | 1/2 cup of whole grains | 1 |

### Tips for Kids
- Children under 2 years old: Focus on whole grains, fruits, and vegetables.
- Children aged 2-4 years old: Focus on whole grains, fruits, and vegetables.
- Children aged 5-8 years old: Focus on whole grains, fruits, and vegetables.

Use this checklist as a general guide for eating healthy and balanced meals for children.
Dear Parent or Caregiver

Welcome to the PBS KIDS Afterschool Adventure! This week we are going on an adventure called Operation: Brown Bag to explore the five food groups and healthy eating. Your child will successfully plan and ‘pack’ a nutritious ‘lunch’ using paper cutouts of food (a copy is attached to this letter). During the week, your child will learn and practice important math skills related to numbers and counting while playing online games, engaging in hands-on activities, and enjoying books. Try these ideas to extend the learning and fun at home!

Talk About It!

Ask your child to describe what he or she did to create a healthy lunch. Practice counting the number of items in your child’s lunch bag, and talk about the food groups they represent.

Discover at Home!

Help your child explore counting in everyday activities.

- During a family meal, help your child count how many people are eating together. Figure out how many plates, napkins, cups, forks you will need and let your child count out each item.
- Make up “number stories” using objects from around the house, such as fruits, vegetables, cheese sticks, or bread slices. For example: You have three carrots. If I give you two more, how many will you have?
- Include your child in safe cooking activities. Have him/her count the number of ingredients and help with measuring and pouring.
- Take it further and move from counting around the house to counting everywhere! Count tomatoes as you load them into a bag at the grocery store, or count the number of people in line as you make your purchase.

Explore Online!

Go to PBSKIDS.org to play games and watch videos about numbers, counting, and healthy eating.

- Use this link to play a game with your child and practice number skills.
  Curious George – Apple Picking
  http://pbskids.org/curiousgeorge/busyday/apples/

  Play this game and help Curious George pick the correct numbered apple to fill in the blank space on a number line. Ask these questions to build your child’s vocabulary and math skills:
  - Which number is missing?
  - How did you find the missing number?
  - Why don’t the other numbers fill the gap? (need a bigger/smaller number)

Read About It!

Visit your local library to check out some books on counting and healthy eating. Look for:
- Feast for 10 by Cathryn Falwell
- Curious George Learns to Count from 1 to 100 by H. A. Rey
- Ten Red Apples by Pat Hutchins
- The Chicken Problem by Jennifer Oxley and Billy Aronson
- From the Garden: A Counting Book About Growing Food by Michael Dahl

This out-of-school resource was developed by Maryland Public Television.
More About Math
Background for Leaders

This unit helps 4-5 year old children develop number sense by having them write numbers from 1-20, count objects in sets, and combine sets through early addition.

Write numbers from 1 to 20

At this age, children should have the opportunity to write numbers from 1 to 20 and associate these numbers with the quantity that they represent. When introducing this skill quantities should be shown in familiar arrangements such as dots on a domino or objects in a row. Children will readily make the connection between quantity and the number if presented with multiple opportunities to visualize the amount.

Counting Objects

Children at this age should understand, when counting, that the last number name tells the number of objects counted. As they count they should say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. Children at this age will be most comfortable counting starting at the number one. They should be able to count the total amount in a group in order to answer “how many?” questions when there are as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration.

Comparing Groups

Young children should be able to identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group. To accomplish this they may use visual estimation, especially if the objects are in a similar configuration, or they may count each group to compare amounts. Children at this age may not be familiar with >, <, or = as formal mathematical symbols. As children compare amounts you may ask them to circle the larger group or smaller group and begin to introduce the mathematical symbols but it is not necessary for children to know these symbols at this point. Children at this age should be able to compare two numbers between 1 and 10 presented as written numerals, although they may need to count out objects to compare when first working on this skill.

Combining Sets

Once children have gotten comfortable counting numbers up to 10, they may begin combining the sets that they have counted (this is a precursor to learning to write number sentences with addition, subtraction, and equals signs). Children age 4-5 years old will be most comfortable adding sets that combine to make no more than 10. While children at this age do not need to write the addition sentence they can represent the situation with a picture or count out objects to show how many. The group leader may write the addition sentence under their representation to help make the connections for the child or children.