Books are an opportunity to explore ideas, concepts, and themes found in everyday events. Children see math, science, and literacy in their everyday lives. When we teach children to see the math, science, and literacy in picture books, we support their understanding of how these processes and events occur. Reading books multiple times is important for exploring different aspects of a story and deepening understanding.

Children are natural scientists, mathematicians, and observers: Children ask questions about the world and are naturally curious about the events, objects, and living organisms around them. Using books allows us to explore math and science ideas through discussion.

Children bring valuable ideas to discussions. Children are capable of the majority of the discussion talk and ideas. Use children’s everyday ideas and experiences during discussions to explore science, math, and literacy topics and questions. Here, educators take on the role of guide and facilitator.

Open-ended questions support and engage children in productive discussions. Use open-ended questions and activities to engage children in discussion about their emerging ideas as they explore math, science, and literacy.

Learning is a process - understanding is something that occurs over time. Just as it is important for young learners to explore the joy of reading before they are able to read, it is important they explore the joy and wonder of math and science even without complete understanding of a concept. This is also true for adults!

All adults are capable of teaching. All adults are teachers whom children can learn from. Use these books and materials as an opportunity to become inspired by picture books to engage with children in math, science, and literacy concepts. Anyone can use stories to have meaningful, exciting discussion that support children’s learning.
Guiding Questions

What do you observe in this (page, picture book)?
What science ideas do you observe in this book? What do these ideas make you think about?
What is happening in the science story that we know is there but can't see?

What do you see, notice, or wonder about?
What (numbers, combinations, patterns, shapes, other math concept) do you see?
How might you use the illustrations to show your thinking?

What do you think will happen in this story, and why do you think so?
What will happen next? How do you know?
What connections can you make between this story and another story or something else you know?
Feast for 10

Introducing the book:
- **Looking at the cover:** This book is called *Feast for Ten*. What do you notice about the illustration on the cover? What might this book be about? (Prediction)
- **Science/Math:** How many people are in this group? How many more people would be at the feast to make 10? Who else might come to the feast? What is a feast and how is it different from a regular meal?

Exploring the book:
- **Dedication Page**
  - **Science/Math:** What do you notice in this picture? What kinds of foods do you see? How many of them?
- **Page 5 (“one cart…”)**
  - **Math:** How many people are on this page? How do you see them? Does anyone see the people in a different way?
  - **Literacy:** What do you notice about what is happening on this page? What is the family doing?
- **Page 10 (“five kinds of beans”)**
  - **Science/Math:** How many kinds of beans do you see? Let’s count the five together; let’s draw a five in the air
  - **Literacy:** What is happening on these pages?
- **Page 16 (“ten hands to help…”)**
  - **Math:** Where do you see the 10 hands? How do you see them?
  - **Literacy:** What do you notice about what is happening on these pages? What do you think will happen next?

Extending through discussion:
- **Science:** Page 29 (“nine chairs around”) What is the white mound in the serving bowl? Where did it come from? How do potatoes grow? How did it turn into mashed potatoes? Does that need a hot temperature or cold temperature to make? Do you see the tomatoes? How can you prepare tomatoes to get them ready to eat?
- **Math:** How many people helped prepare the feast? How many more people joined the feast? How many people were there altogether? Think of a time when you had a feast or party? How many people helped prepare, and how many people joined? How many people were there altogether?
- **Literacy:** Let’s think about what makes a feast different from breakfast, lunch or dinner. What is special about a feast? When did you have a feast, and who joined your family for the feast?
**Feast for 10**

Exploring the book:
- Page 10 ("five kinds of beans")
  - **Math:** Where do you see the 5 kinds of beans? What do you notice about the amount of beans in each container?
  - **Science:** Why is the baby in the shopping cart? What do you think her family is teaching her to do?
- Page 14 ("eight ripe tomatoes")
  - **Math:** Where do you see the 8 ripe tomatoes? How do you see them?
  - **Science:** What do you think it means if the tomatoes are ripe?
- Pages 16-17 ("ten hands help...")
  - **Math:** Where do you see the ten hands? How do you count them?
  - **Science:** Why do you think everyone in the family helps? Would the baby be able to go shopping for groceries by herself?
- Pages 20-21 ("two will look")
  - **Math:** How many people do you see on these pages? How do you count them?
  - **Science:** Why do you think the little children watching, while the older ones help? Would it be fun to cook with a group of people like your family or friends?
- Page 28-29 ("eight platters down")
  - **Math:** Where do you see the 8 platters? Where do you see the 9 chairs? Can we hear you count them? How many people do you see? How many more people will join the feast?
  - **Science:** Look at the picture, what did the family make? (feast/dinner/food) How do you think they feel about what they made?
- Pages 30-31
  - **Math:** Where do you see the ten hands? How do you count them? What do you notice about the people and the chairs?
  - **Science:** What does it mean when people get hungry? Have you ever felt hungry? What do you do to stop feeling hungry?

Exploring and extending the thinking:
- **Math:** Engage in a discussion about the different numbers and quantities children saw in this story. Which was your favorite part of this story? What number and quantity did you see in that part of the story? **Invite children to draw something they like to eat in that quantity and include the numeric symbol.**

- **Science:** Engage in a discussion about what people need to survive. Ask students to think about the different ways that families (parent, caregiver) help small children/babies eat so they can grow. Ask children if different kinds of animal families help their animal babies to eat, allowing time for students to think and list animal families, food sources, and stories.
Exploring and extending the thinking:

- **Literacy:** Let’s look back through the book and collect all of these interesting words on chart paper. Let’s put the words into two groups—words that tell us what people are doing (verbs) and words that describe things (adjectives and the two adverbs).

- **Verbs:** fry, look, help, load, look, cook, taste, ask, wash, peel, share

- **Adjectives/nouns:** grocery store, bunches of greens, dill pickles, ripe tomatoes, plump potatoes, empty cans, hungry folks

- **Adverbs/nouns:** platters down, chairs around
Introducing the book:

- **Looking at the cover:** This book is called Lion’s Share. What do you notice about the illustration on the cover? What might this book be about? (Prediction)
- **Science/Math:** Do you think this story will show animals living in their habitats and eating their natural food?

Exploring the book:

- **Page 13 (“The elephant looked at...”)**
  - **Literacy:** What just happened on this page, and what do you think will happen next?
- **Pages 16-17 (“This continued...”)**
  - **Math:** What do you notice about the way these animals are cutting the cake?
  - **Literacy:** How does what is happening compare to the prediction you made? What do you think will happen next?
- **Page 18**
  - **Literacy:** What has happened? How does this compare with your prediction? What do you think the ant will do?
- **Pages 24-25 (“I can top that...”)**
  - **Math:** What do you notice about how many cakes the animals are baking? What patterns do you see? What might come next? How do you know that?
  - **Literacy:** What do you think will happen next?
- **Page 30**
  - **Literacy:** What are you noticing about this story and patterns? What do you think will happen next with the ant and the other animals?

Extending through discussion:

- **Math:** What happens to size when you cut something in half? And half again? And half again?! What happens in quantity when you double something? And double it again and again?!
- **Literacy:** What did you notice about the animals in this story? Which animal was your favorite, and why? What did you notice about the ant? What did you notice about the lion?
Exploring the book:

- **Math:** When we first read this book, we did some noticing together about how the animals were cutting the cake. We noticed patterns when animals were baking the cakes too. When we read this story again, let’s think about these ideas more together.

- **Science:** It is important to recognize with children that the animals in this book are represented fictitiously as animals do not speak to each other as humans do and they do not bake cakes or have dinner parties with other animal species.

- **Page 13 (“The elephant looked at...”)**
  - **Math:** The elephant cut the cake in half and passed the rest to the hippo. What do you notice about the way the elephant cuts the cake? Where did he make the cut? Why do you think he cut in that spot? What are other ways he could have cut the cake in half? What do you notice about the portion he passed to the hippo?

- **Pages 14-15 (“What a pig...”)**
  - **Math:** The hippo made a slice down the middle. Why do you think hippo cut down the middle? What happened to the cake when she made that slice? What portion did she take? What portion did she give to gorilla? Why do you think that portion is called one quarter? (This is not about children getting the right answer, but rather about reasoning about the portions. Elicit and hear their ideas).

- **Page 23 (“’Hey, King,’ said the frog.”)**
  - **Math:** What do you notice about the amount of cakes these animals are baking? Let’s record the number of cakes, or quantities, so far. What patterns do you notice in these numbers? What do you think will happen next? Why do you think that?

- **Page 36 (last page)**
  - **Math:** What do you notice about the lion and the ant sharing the cake here? Is it fair? Explain your idea.

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Exploring and extending the thinking:

- **Math:** Invite children to engaging in sense-making about cutting something in half multiple times. Provide paper and scissors (if age appropriate) to cut in half and notice and engage in discussion about the two pieces. What do you notice happens to the sizes of the pieces when we cut in half? Where is the whole? Where is the half? Continue cutting with an emphasis on sense-making and posing open-ended questions. Where is the whole? Where are the parts? How can we describe the portions? The image on the inside of the cover may support sense-making and discussion. After thinking together about halving, you could use the pieces to have further discussion about doubling. Start with the smallest portions and double. What do you notice about the size of the portion as it doubles?

- **Science:** Consider having a conversation with your learners about this story from a scientific perspective. Engage in discussion about questions related to animal communication, habitats, and food sources. Each animal species communicates in their own way; there are many sophisticated ways that animals communicate with each other for survival. In this book the lion was eating people food, what do you think lions really eat? Do animals bake cakes? Where do gorillas live? in size.
Let’s read this fun story again! This time let’s pay special attention to how the illustrations help the words describe the animals as characters. What do we notice about what the illustrations and words show and tell us about the animals and how they behave?

Exploring the book:
- Page 9 (“Some time later, the beetle...”)
  - What do we notice about how the animals look in the illustrations? What do the words say about the animals and how they behave?
- Page 11 (“When dinner was served...”)
  - What do we notice about how the animals look in this illustration? What do the words say about the animals and how they behave? What do you notice about the lion and the ant?
- Page 13 (“The elephant looked at...”)
  - What do we notice about the elephant from the illustration and words in the story?
- Pages 14-15 (“What a pig...”)
  - What do we notice about the hippo from the illustration and words in the story?
- Page 19 (“Typical ant...”)
  - What do we notice about how the animals look in this illustration? What do the words say about the animals and how they behave?
- Page 35 (“The next morning...”)
  - What do we notice about how the animals look in this illustration?

Exploring and extending the thinking:
- What were the animals in the story like? How were the lion and the ant different from the other animals?
Introducing the book:

- **Looking at the cover:** This book is called *Plants Feed Me*. What do you notice about the illustration on the cover? What might this book be about? (Prediction)
- **Science/Math:** What do you notice? What do you wonder?

Exploring the book:

- **Page 7 (“I am a plant eater.”)**
  - **Math/Science:** We can see many fruits and vegetables on these pages! Turn and tell your neighbor, what do you notice there is one of? What do you notice is in the bunches? And how many do you think are in that bunch? Why do you think that?
  - **Literacy:** What does the boy mean, “I am a plant eater?” Let’s predict what that means and what he’ll share with us.
- **Pages 8-9 (“Plants reach up for the sun.”)**
  - **Math/Science:** The plants are reaching up! The plants are growing down! Let’s show movement up and movement down with our bodies. Which plants are “above”? Which plants are “below?”
  - **Literacy:** Where are the children? (garden) What kinds of things are they doing?
- **Page 14 (“I eat fruits.”)**
  - **Science:** Do you know what insects helps the flowers turn into apples?
  - **Math:** What do you notice about the apples on the tree? Describe the groups you see. Without counting, how many apples do you think are on the tree? Why?
  - **Literacy:** What is the boy now? What is he doing? (orchard).
- **Page 18 (“Fruits hang from the tomato…”)**
  - **Science:** Can you find a bee? Why do you think the bee is near the tomato flower?
  - **Math:** What do you notice about the fruits on these pages? **Without counting,** how many seeds do you think are in the pumpkin? Pepper? Eggplant?
  - **Literacy:** Where are the girls on these latest pages? What are they doing?

Exploring through discussion:

- **Science:** Choose a picture or two in the books to talk about. For example, on pages six and seven, spend time discussing the different foods that you see in the drawing. **Listen to what the children are noticing in the picture and use their observations to generate questions and discussions.** Sample questions include but are not limited to the following:
  - What are the little, black things on the plate? Why do you think the watermelon has such a hard skin on the outside? What colors do you see? What shapes do you see? Which foods grow underground? On a bush? On a tree?
- **Math:** There was a lot to notice and wonder about in this story. **What kinds of things in this story were found in groups?** (apples, blueberries, fruit seeds…). Let’s go back and look at some of those groups. Let’s try see things in groups without counting each thing.
**Plants Feed Me**

**Introducing the book:**
- **Looking at the cover:** This book is called *Plants Feed Me*. What do you think the title of the book means?
- **Math:** How many of each plant do you think these children will harvest? How do you know?

**Exploring the book:**
- **Page 7 (“I am a plant eater.”)***
  - **Science:** We can see many fruits and vegetables on these pages! What kinds of colors do you see in the fruits and vegetables?
  - **Math:** How many watermelon seeds do you see? How did you count them? Are there fewer watermelon seeds or fewer cherries? How do you know?

- **Pages 8-9 (“Plants reach up for the sun.”)***
  - **Science:** Do plants need sun? Can they grow in a dark room? How do you know?
  - **Math:** How many beans do you think the boy might pick for his friends to eat? How many carrots? How many heads of lettuce?

- **Pages 12-13 (“And sometimes I eat the roots and tubers.”)***
  - **Science:** Do you see any roots that you have eaten?
  - **Math:** What do you notice about the different tubers? (Encourage discussions about length, width, quantity, etc.) What do you notice about the difference between the length of the carrot and the length of the beet?

- **Page 15 (“I eat fruits.”)***
  - **Science:** Do you know what insects help the flowers turn into apples?
  - **Math:** How many apples do you think the boy picked so far? How many apples might fit in the basket? How much does one apple weigh? Can the boy lift the basket when it is full?

**Extending through discussion:**
- **Science:** The next time you visit the store have a scavenger hunt to find all the different kinds of seeds, leaves, roots, fruits, and vegetables that you eat. Count the different kinds of colors you eat. This scavenger hunt can happen during a walk or visiting a garden.

- **Math:** Bean and pea pods often open with some of the peas attached to one side, and some attached to others. Kids can open a pod and say or write a number sentence that represents the peas. 3+2=5 or 5-2=3 (cover up one side of the pod to illustrate subtraction.)

- **Math:** Let’s keep track of the different kinds of plants from this book (or that children eat and/or can name). Have children think about what part of the plant they would eat. Try keeping track of the different categories with a simple chart (seeds, tubers, leaves, flowers, etc.) What do you notice about the number of plants in each category?
This book describes different kinds of plants and how they provide food for people. It’s an interesting book! Let’s read it again, and this time let’s pay special attention to the kinds of words that are used to identify the different kinds of foods we get from plants.

Exploring the book:

- Pages 10-13 ("I eat different parts...")
  - What parts of plants do we eat?
  - What interesting words did you hear? (leaves, roots, tubers, bulbs, stems, flowers).
- Pages 15-19 ("First flowers bloom.")
  - What kinds of fruits do we eat? (blueberries, melons, tomatoes, pumpkins, peppers, eggplants).
  - What do all kinds of fruit have in common?
- Pages 21-25 ("Beans do too.")
  - What are some kinds of seeds we eat? (beans, wheat, rice, nuts)

Exploring and extending the thinking:

- Think about the different plants and parts of plants that people eat. What was your favorite from the book? What are some of your favorites to eat?
- Draw a poster with at least one favorite from each of these three: 1) plant parts (leaves, roots, tubers, bulbs, stems, flowers) 2) fruits, 3) seeds.
**INTRODUCING THE BOOK:**

- **Looking at the cover:** This book is called *Round is a Tortilla*. What do you notice about the illustration on the cover? What might this book be about? (Prediction)

**EXPLORING THE BOOK:**

- **Pages 5-6 (“Round are tortillas...”)**
  - **Math:** What round things do you notice? (Kids might notice items in the illustration or in the room.)
  - **Literacy:** What do you notice about the settings on these pages? What kinds of things are the people doing?

- **Pages 11-12 (“Square is the park...”)**
  - **Math:** Where do you notice squares? What makes a shape a “square”?  
  - **Literacy:** What do you notice about the settings on these pages? What kinds of things are the people doing?

- **Pages 15-16 (“Stone metates...”)**
  - **Science:** Can you point to the different places that corn is found in the pictures? Do you see any other places where the corn is? Have you ever eaten corn?  
  - **Math:** How many corn plants do you see growing? Do you see anything else growing in a garden?

- **Pages 19-20 (“Triangles are crunchy...”)**
  - **Science:** What do you think the chips are made from? Chips can be made from lots of different plants and food. Can you think of different kinds of chips that you have eaten?  
  - **Math:** What shape are these chips? What makes a shape a triangle? Trace a triangle in the air. How does your triangle look similar to/different from your neighbors?  
  - **Literacy:** What do you notice about the settings on these pages? What kinds of things are the people doing?

- **Pages 27-28 (“Stars for parties...”)**
  - **Math:** What shapes do you notice? (Kids might notice items in the illustration or in the room.)
  - **Literacy:** What do you notice about the settings on these pages? What kinds of things are the people doing?

**EXTENDING THROUGH DISCUSSION:**

- **Science:** Consider having different kinds of chips in different shapes available for children to make observations about. With children read the different label to identify the food/plant that the chip is made from and identify the different shapes of chips.
**FOOD STORY TIME STEM**

**FOOD**

**Math/Science Bookmark Guide**

**ROUND IS A TORTILLA**

Exploring the book:
Young mathematicians often consider the overall “look” of an object when they begin identifying shapes. Moving from this concept of identifying shapes to one that considering the attributes of the shape (number of sides, corners, etc.) is a process that requires practice and time.

- Pages 5-6 (“Round are tortillas…”)  
  - **Math:** What foods do you see in the stew? Let’s draw a round shape in the air with our fingers. What objects in the picture are round? What are some other round objects in this room? Are there some objects that are curved, but not round? What is the difference?
  - **Science:** Have you ever eaten stew or soup? Was the stew hot or cold? Why do you think people cook food so that it is hot?

- Pages 9-10 (“Square are ventanas.”)  
  - **Math:** How many different creatures can you count in these pictures? Let’s draw a square shape in the air with our fingers. What shapes do you see on the picture that are square? What are some other square objects in this room?
  - **Science:** What do you think these animals eat? Why do animals need to eat?

- Pages 13-14 (“Rectangles are carts…”)  
  - **Math:** Let’s draw a rectangle in the air with our fingers (or have children use paper or white boards). What do you notice about something that is the shape of a rectangle? Where do you see rectangles in the picture? What are some other rectangular objects in this room? How do you know it is a rectangle?

- Page 15-16 (“Stone metates…”)
  - **Math:** What shape is the metate? How does the shape of this tool help grind the corn? What might happen if the metate was a different shape? (rectangular, triangular, sphere etc.)
  - **Science:** Can you find the plant that corn grows on? What do you think these corn plants need so that they can live and grow? Do these corn plants look like they grow in the wild or are they part of a garden?

- Pages 19-22 (“Triangles are crunchy…”)
  - **Math:** Compare the tortilla chips to the sails. What do you notice about the shapes? How are they similar? How are they different?
  - **Science:** Have you ever eaten guacamole? Do you know what guacamole is made from? I will give you a hint, there is something growing in the tree above the table. (hold up a photo or a real avocado to show where guacamole comes from)

- Pages 23-24 (“Sandías chilled…”)
  - **Science:** Can you find the sun? Is the sun an important part of growing food like watermelon?

Exploring and extending the thinking:

- **Math:** Activity to explore attributes of shapes (angles, sides, types of lines, etc.) Have a collection of cards: some with pictures from the book, some with shapes in line drawings, and some with numbers printed 0-4. Have children group different shapes using the numbers and explain how they decided to group them. (Some young mathematicians may group the round shapes with a 0 because there are no angles/corners. Encourage older mathematicians to use the same “rule” across all of their groups. In this case, look at all of the shapes thinking just about the attribute of having corners/angles.)

- **Science:** Pages 15-16: Why do you think people plant gardens? What are some kinds of things that are planted in a garden? Have you ever grown a garden or planted a seed, what did you do to help the plants grow?

- **Consider having foods available to students that are related to this book.** (Avocado, tomato, salt, cilantro, chips, and/or different kinds of tortillas or chips) Children can be given the opportunity to observe and discuss the foods and the source of where they came from and how they grew. If your location (home, school, community center) allows food consumption (avocados are a semi-common food allergen), collectively make guacamole and or sample the food after the book is read aloud. Speaking to children about where food comes from is important to understanding and protecting healthy food sources including pollination and plant growth.

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**FOOD**

**Round is a Tortilla**

Let’s read this fun story again! This time let’s pay special attention to words in Spanish that help describe objects and ideas in this story. How can we use information from the story to help us understand what these words mean? (write them on chart paper as you read and discuss the book).

**Exploring the book:**
- Pages 1-2 (“Round are sombreros.”)
  - **What is a sombrero?** How do you know? Can you find one in the illustration?
- Pages 3-4 (“Round are campanas.”)
  - **What are campanas?** How do you know? Can you find one in the illustration?
- Pages 5-6 (“Round are tortillas…”)
  - **What are tortillas and tacos?** Who is abuela? How do you know?
- Pages 9-10 (“Square are ventanas.”)
  - **What are ventanas?** How do you know? Can you find them in the illustration?
- Pages 11-12 (“Square is the park…”)
  - **What is a zócalo?** How do you know? Can you find the zócalo in the illustration?
- Pages 13-14 (“Rectangles are carts…”)
  - **What are paletas?** How do you know? Can you find paletas in the illustration?
- Pages 15-16 (“Stone metates…”)
  - **What are metates, and what do masa and casa mean?** How do you know? Can you find these things in the illustration?
- Pages 19-20 (“Triangles are crunchy…”)
  - **What is guacamole?** How do you know? Can you find guacamole in the illustration?

**Exploring and extending the thinking:**

**Literacy:** We have this list of interesting words in Spanish from the story! We have also talked about what we think they mean. In this book there is a glossary. The glossary is like a dictionary for words that appear in the story. **Let's think about the Spanish words we talked about and then compare what we know to how the glossary defines the words.**

- Look at glossary after discussing the following words:
  - Sombrero
  - Campanas
  - Tortilla
  - Taco
  - Abuela
  - Ventana
  - Zócalo
  - Paletas
  - Metates
  - Casa
  - Masa
  - Guacamole
  - Sandías
  - Quesadillas
  - Huevos

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**STORY TIME STEM**

**FOOD**

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