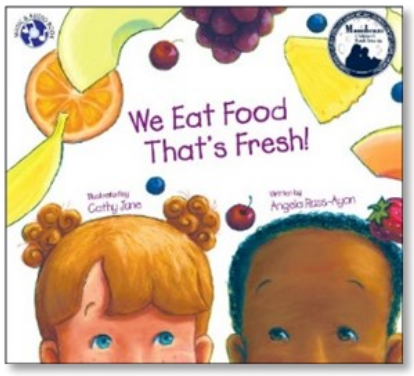
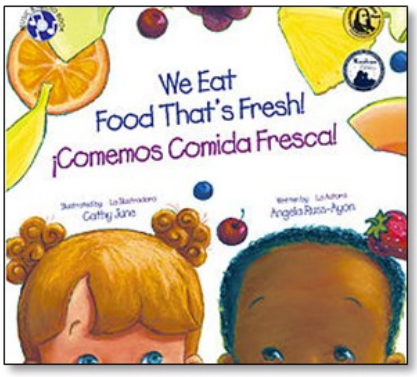



**"We Eat Food That's Fresh"**
(English)

**"Comemos Comida Fresca"**
(Spanish and English)

Picture Book
Authored by Angela Russ-Ayon
Illustrated by: Cathy June




## STEM Extensions

In addition to the nutrition aspect of this book, there is a STEM component that is well worth sharing. Connecting literature, science, and hands-on discovery helps give children a more concrete understanding of new concepts in and around the kitchen. **Compare and contrast** the different food you see, actions you do, and tools you use. Follow the interest of the children and offer extensions toward new findings. Here are some helpful tips to make your experience worthwhile.

Introduce other books that relate to your activity or experiment. Even books for grown-ups have wonderful photographic sequences. Consider some simple experiments or projects:

- ◊ the process of frozen vegetables melting
- ◊ the preservation of food: refrigerated, left out, stored in a container, microbial growth, etc.
- ◊ the making of compost

- **Supply** blank paper, writing, and drawing **implements** for children who want to journal and record their observations. Introduce arts and crafts activities that tie into what you're doing.
- **Create a photographic record** that can be posted, reviewed, and discussed later. This can increase memory and recall skills.
- Keep **scientific tools** handy for children to explore further: plastic tweezers or tongs, magnifying glass, plastic examining jars, ruler, measuring cups, pipettes, sifters, beakers, funnels, flashlight, a colander, ladle, whisk, hand juicer, garlic press, and other child-safe scientific tools.

- **Declutter the work area**, so children can focus on what they're doing.
- **Prepare for the mess**.
- **Allow plenty of time** for children to observe, predict, experiment, gather data, compare, problem-solve, and share their findings.
- **Ask open-ended questions** that promote higher-level thinking skills and guide children to the next level of learning.

## The simplest science is just a matter of examining a fruit or vegetable:

1. **Use all five senses** to examine real fruits and vegetables.
2. Try to **identify fruits and vegetables** using only the sense of smell, taste, or touch.
3. Identify the fruit or vegetable based solely on a verbal description
4. Compare **real vs. pretend** food. *What do you notice? How can you tell the difference?*
4. *How do you think the fruit/vegetable got here from where it was grown?*
5. Compare clean vs. dirty. *Why do we clean food before we eat?*
6. *What do you notice about how the fruit or vegetable grew? Where are the stems/roots attached?*
7. **Measure the fruits and vegetables.** Introduce terms such as thick, thin, wide, short, and long.
8. Make predictions about what you will find when you slice open or peel fruits or vegetables.
9. **Dissect** fruits/vegetables and examine how they differ. *What's the difference between slicing and peeling?*
10. Can the fruit or vegetable be squeezed/juiced/blended? *What is the difference between fruits or vegetables before and after they are squeezed/juiced/blended?*
11. *How does one fruit or vegetable compare to others of its kind?*
12. Explore varieties of fruits and vegetables. For example, apples come in different varieties: Fuji, Granny Smith, Pippin, Red Delicious, Honey Crisp, Gala, etc. <Caution: Food allergies>
13. Slice fruits/vegetables horizontally, vertically, and diagonally. Take notice of symmetry, segments, or sections after you slice. Examine the inside.
14. *How do skins/peels/pods/insides differ? Why is there a skin/peel/pod on the outside?* Scratch surfaces. What do you smell?
15. Notice where the seeds are located. Compare and contrast different types/sizes/shapes/colors of seeds. *How do the seeds differ? How are they the same?*
16. Make seed artwork. *How can you use these seeds to make art?*
17. Compare whole fruits and vegetables to those that are sliced or separated into sections.
18. Examine fruits, vegetables, and their characteristics:
    - Space: front | back | top | bottom | sides
    - Size: big | small | long | short | wide | thin | thick | length | width
    - Shape: round | oval | star |sphere | circular | curved | angled edges | symmetrical | bulbous
    - Colors, including solid or blended
    - Texture: smooth | rough | spiny | lumpy | smooth | ridges | soft | hard
    - Passage of time: old | new
    - Condition: broken | bent | holes | defects | spots | bruises
    - Weight: heavy vs. light



19. Sort and classify fruits and vegetables by color or other characteristics.
20. Describe the texture. *How does it feel in your hand? How does it feel in your mouth?*
21. Take a picture of dried seeds/beans, print the picture, and challenge the children to match the seeds/ beans to the photo or to the fruit or vegetable.

22. Explore various ways fruits and vegetables can be prepared: raw/fresh, mashed, blended, steamed, baked, boiled, juiced, pureed, dried, chips, combined with other fruits or vegetables, etc.
23. Investigate different ways of eating a fruits or vegetables. For example, lettuce is used in salads, sandwiches, tacos, wraps, etc.
24. Conduct a taste test. Describe the different flavors, such as tart, tangy, bitter, sweet, and sour. Take a poll and make a chart of preferences.
25. Prepare a fresh salad, wrap, smoothie, or vegetable soup together.
26. Introduce complex vocabulary: aroma, bundle, clean, decay, liquid, pulp, peel, zest, separate, etc.

## Temperature

1. Predict how a thermometer works.
2. Using a thin cup, press your hands on the outside of the cup and feel warm water vs. cold water.
3. Hot vs. cold water: Using the thermometer to test the temperature of water at room temperature, water left in the shade, water left in the sun, water taken out of the refrigerator, heated water, or water chilled with ice.
4. *How do fruits or vegetables look/taste when they are room temperature, baked, boiled, frozen, or chilled?*
5. Examine ice as a solid, floating & melting in liquid, melting on different surfaces, and re-frozen back into a solid. *What happens when you freeze a vegetable or piece of fruit, with or without the skin/peel/pod?*
6. **Freeze water in different-shaped molds**.
7. **Freeze water with additives** such as oil (water is heavier), food-based food coloring, flour, corn meal, paint, chalk dust, cake sprinkles, edible food, and more.
8. **Add** food-based **food coloring** or liquid watercolor to water before freezing and observe what happens when the ice melts. Notice how the colors change when the liquids mix.
9. Drop liquid paint/food coloring on ice cubes and see what happens.
10. Drop vinegar on ice cubes containing baking soda. See what happens.
11. Explore temperature changes using a hair dryer, microwave, heating packs, and ice packs.
12. Salt lowers the freezing point of water, which makes it melt faster. Sprinkle salt on ice and observe the result.



## Life Cycle

1. Review the **life cycle** of plants, fruits, and vegetables.
2. **Study the parts of plants:** roots, stems, stalks, flowers, vines, and leaves. Talk about how water travels through the plants. Perform a xylem experiment with food-based food coloring.
3. Discuss how fruits and vegetables get to the store/kitchen.
4. Discuss how plants need rich soil, sun, water, and care to grow.
5. Plant seeds in the soil and grow an edible garden.

6. Study **foods that grow underground** (tubers) and those that grow above ground (on vines, bushes, and trees).
7. **Re-grow lettuce** from a stem using fresh water.
8. Leave fresh food out and examine it as it begins to move through **the process of decay.** Mark the passage of time on a calendar, and record the progression with pictures or drawings.




9. **Plant seeds** in baggies or clear plastic containers and watch them grow. Take pictures to record findings.
10. Place identical plants in the dark vs. in the sun, in the sun vs. artificial light, talked to with care or ignored, watering vs. not watering, and see how the plants grow differently.
11. **Slice** fruits and vegetables at **different stages of growth** and see how they have formed.
12. **Examine** fruit and vegetable parts under a **magnifying glass or microscope**. This includes leaves, stems, roots, flowers, petals, thorns, and buds.
13. **Dig** up **a shovel full of soil** from outside and encourage the children to **examine** it under a magnifying glass or microscope.
14. **Collect insects** found in the garden. Note their different characteristics. Discuss how they live and what they eat.

## Counting and Fractions

1. **Count** different types of fruits, vegetables, parts, and pieces.
2. **Estimate** how many seeds you will discover inside the food. *How can you find out how many seeds are inside?* Slice and recount to see if you are correct.
3. **Slice** toy food or real fruits and vegetables with child-safe utensils, count the pieces and put the food back together. Observe how the various pieces make a whole (fractions). *Do pieces of different foods fit together and make a whole piece? How?*
4. **Mix up** the seeds, sort them, and count them again according to their characteristics.

## Measurement

1. **Measure** the height, length, width, and circumference of various fruits and vegetables.
2. **Prepare foods** children can taste by following the directions of a simple recipe (sequence of events) using visual aids and measuring tools. <Caution: Food allergies>
3. **Measure and compare** food as **solids** or **liquids** using plastic measuring cups, measuring bowls, eye droppers, and syringes.
4. **Transfer solids or liquids** into different-sized containers observing how much each container holds.
5. **Compare and contrast** lengths, widths, and shapes of various foods, roots, leaves, or stems.



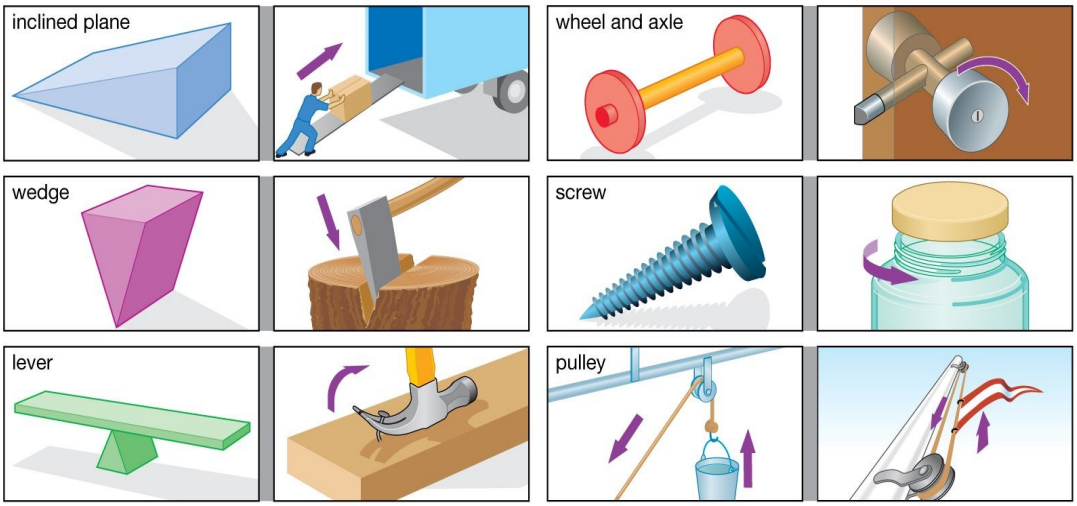

6. Use simple scales to compare the weights of fruits and vegetables (parts and whole).
7. Roll dough. Use different sizes and shapes of cookie cutters to cut real dough or Playdoh.
8. **Match sets** of tools or food.
9. **Arrange shapes** according to size.
10. Make and **extend a pattern.**
11. Place whole veggies in a plastic cup of water. Then slice the whole veggies into thin pieces and place them in the water. *Do they float or sink?* If you have an ounce scale, weigh the whole veggies and the veggie pieces. *What do you notice?*
12. **Observe** the reaction of super absorbent polymers (**growing toys**) placed in water. Record the changes in size by tracing around the toy, and then record how much the toy grows after being placed in water. Leave the toy out, and note how it dries and shrinks to its original size. *What happened to the growing toy when it dried out?*

## Engineering & Technology

1. Examine various tools and simple machines used in the kitchen: strainer, measuring cups, lemon squeezer, thermometer, peeler, can opener, whisk, zester, tongs, oven mitts, spatula, slotted spoon, ladle, etc.
2. **Simple machines:**
    - change the direction of the force we apply
    - change the strength of the force necessary to do a job
    - apply force to a place that cannot otherwise be reached
    - apply force in ways that cannot be done without machines



3. Some tools will fall into several categories depending upon the parts you refer to.
    - **Incline Plane:** A plane inclined at an angle to the horizontal. (Baking sheet, spatula)
    - **Wedge:** One thick end, tapering to a thin edge - can be driven between two objects to secure or separate them. (Knife, grater, peeler, scissors)
    - **Lever:** Help lift, move, cut, or break an object using applied pressure (Tongs, can opener, peeler, scissors, fork, nutcracker)
    - **Wheel and Axle:** A wheel on a cylindrical drum. (Can opener, pizza cutter, rolling pin)
    - **Screw:** An object that twists to join things together. (jar)
    - **Pulley & Gears:** A toothed machine part that meshes with another toothed part to transmit motion or to change speed or direction (hand mixer, can opener)





4. Predict how the tools are used. Test the children's theories. *How do you think this tool will help us?*
5. Invent other uses for existing tools. *How else can we use this tool?*
6. Provide materials and let the children design and invent new tools that are helpful. *How can you use this material to make a tool?*
7. Tour a local grocery store to see what technology and engineering can be found: scanners, scales, conveyer belt, freezer, mist sprayer, rolling carts, and register with a keypad.

## Chemistry

1. Squeeze fresh fruit and **make fruit juice** for a taste test. <Caution: Food allergies>
2. **Combine different juices** and compare how they taste. <Caution: Food allergies>
3. **Strain** juices that have pulp. **Sift** dry ingredients. *Why is some food left over in the strainer/sifter?*
4. Fruits and vegetables come in different colors of the rainbow. Mix the colors of crayons, chalk, Play-doh, food coloring, etc., and observe the result.
5. **Combine small quantities of liquids** using an eyedropper or syringe and see what happens: orange juice and water, cold /warm water and honey, apple juice and water. Heavy liquids sink, lighter liquids float, and you can magically "layer" them. *What happens when you shake them?* Some liquids, once combined, become cloudy, whereas some remain clear.
6. Experiment by lining up jars of water and placing different ingredients in the water to see **which dissolve and how fast.** (flour, sugar, salt, honey, rice, honey, syrup, vitamin, etc.

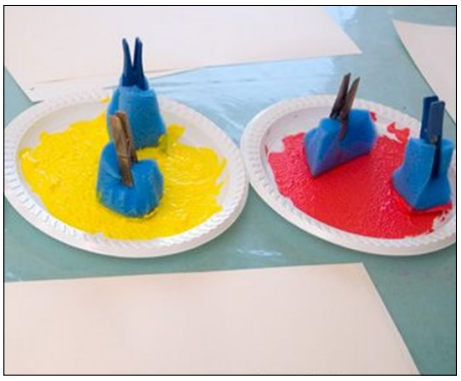
7. Do the same with dry goods: dry rice and beans, flour and sugars, rice and flour.
8. Combine liquids with dry goods. Try mixing different sugars in water, baking soda with vinegar, lemon juice with baking soda, or dry beans in water. Add water, oil, or vinegar to flour or sugar and see how the individual ingredients react. *What will happen if you add food coloring to the liquid?*
9. Fill clear plastic jars with different liquids (oil and water) and see how the ingredients settle. *Do you think they will separate or mix together? What if you shake them?*
10. Combine baking soda with lemon juice, and you get bubbles. *How can the bubbles help you blow up the balloon?*
11. Soak a slice of fruit sit in different temperatures of water or different types of liquids, such as lemon juice or even vinegar, and see what happens. Let pasta sit in cold vs. warm water and observe what will happen when the pasta is added to the vegetable soup. *What happens if you leave a slice of avocado in a sealed baggie vs. sealing it in lemon juice?*
12. **Mash, blend, and mix** different fruits and vegetables to make shakes, snacks, and dips.
13. **Compare flat water vs. carbonated water.** Complete experiments using both types of water.
14. **Make invisible ink** and draw invisible pictures on plain white paper using fresh lemon juice dabbed lightly on Q-tip swabs or a small paintbrush. Let the juice dry. To see the picture, hold the paper near a heat source such as a light bulb. The acid in the lemon juice weakens the paper making it more sensitive to heat.
15. Sprinkle baking soda over the top of frozen vinegar cubes and **observe the fizzing reaction.**



## Absorption

1. **Soak up water** and other liquids **with a sponge.** Squeeze the liquid into containers and measure how much liquid was absorbed. *How can we tell which sponge absorbed the most?*
2. Use eye droppers and experiment to **see which material absorbs the most water**: paper towel, napkin, tissue, fabric rag, wax paper, foil, paper, plastic baggie, wood, sponge, metal, etc. Hold the item over the cup and squeeze to measure the amount of water absorbed. *What happens when the water isn't absorbed?*
3. **Add food coloring to** the water to help children see the absorption taking place.
4. Since water doesn't absorb into foil, fold and scrunch the foil. Watch which path the water takes. **Create rivers and pools using the foil.** *How is the path of water different on wax paper or a plastic baggie?*

5. Fill jars with water and different colors of food coloring. Red, orange and blue work well. Slice celery stalks at the top and bottom. Place the freshly cut stalks into each jar and examine the process of transpiration as the colored water works its way up the xylem inside the stalks. *How much water did each stalk absorb (or drink)? Where does the color appear on the stalks? Does it matter how many leaves the stalk has?*


## Evaporation

1. When water gets hot, it creates steam. Cover a cup of hot water with a piece of clear plastic and watch the steam form in the cup and on the plastic.
2. Leave a cup of water out (in a sunny window) and continue to measure the level of water as it evaporates over time. Does apple or grape juice evaporate at the same speed?
3. Pour two puddles of water on concrete out in the sun. Cover one puddle with plastic Saran Wrap. *What do you think will happen to the water that is covered?*
4. Wet a coffee filter with water and food coloring. *What do you think will happen when the water dries?*
5. Paint a design on the ground and observe what happens to the water on a cold day vs. a hot day. *Where did the water go?*
6. Paint over a chalk design. *How does the design change?*



Feel free to email your STEM experiences with young children in the kitchen and garden to **info@abridgeclub.com**. We appreciate your questions, comments or constructive criticism, and we are happy to share your input with others.