

From Flower to Fruit

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About This Book



The purpose of *From Flower to Fruit* is to inspire young children to appreciate the wonder of nature—specifically, the flowers that bloom throughout the growing season—and understand the importance of flowers in every ecosystem. Adults can read this book to younger children, or older children can read the book individually as an activity. More than just a pretty book, *From Flower to Fruit* is intended to create an interest in and curiosity about flowers so that children will look carefully at them and their fruits. The goals of this book support the biology practices, core ideas, and concepts outlined in the *Next Generation Science Standards* (NGSS Lead States 2013).

The book illustrates the daylily (*Hemerocallis sp.*) and the balloon flower (*Platycodon grandiflorus*) because they are large “perfect” flowers, meaning they have both male and female parts that are obvious to even the casual observer. Of course, not all flowers are so easily observed, and not all flowers are perfect. For example, in the dandelion (*Taraxacum officinale*), each tiny petal is a complete flower. On the shrubs of the holly (*Ilex sp.*), male and female flowers are located on separate plants.

For children, finding the reproductive parts of flowers in their environment can turn into an investigation once children are able to recognize the basic differences between parts. Adults who are guiding the investigations can use the brief background on flower and fruit anatomy at the end of the book as a reference. Flowers can provide great teaching and learning opportunities for all ages. Botany, the study of plants,

has been grossly underrated as a topic for investigation, perhaps because botany is commonly considered more of a memorizing or categorizing science. We hope this book will introduce the discovery and wonder of botany.

Plants have evolved over the years to provide some of the most amazing structures in the biological world: flowers and fruits featured in this book, internal vessels that defy gravity as they transport food and water, and roots that respond to touch. Moreover, plants have developed methods of modifying their structures and chemicals to repel predators and are essential to the incredible chemical reaction of photosynthesis. Plants make up 99% of the biomass in our biosphere, so they are difficult to ignore. They provide us with food, nutrition, and oxygen for our respiration. Plants also remove potentially dangerous chemicals such as carbon dioxide from our atmosphere.

On the macro level, plants provide food for smaller creatures such as our beloved butterflies and honeybees, not to mention moths, beetles, hummingbirds, and bats. They also provide adornment for homes and dresses. Plants are near the bottom of the food chain, and without plants, no animals, including humans, could live. On an economic level, plants provide lumber and resources that are important to our world economy—oil and natural gas (giving whales a break from being the only source of lubricants and fuel for hundreds of years).

Although the book’s botanical investigations may have limitations, especially for children in urban environments who may not have many flowers outside to observe, we urge you to try to find opportunities for

children to examine real flowers. They can be purchased quite inexpensively at the supermarket and brought back to the home or classroom. Be aware, however, of the types of flowers you buy. Perfect flowers such as those portrayed in this book are hard to find. Most of the flowers in supermarkets are what are known as *composite* flowers—for example, mums and carnations. Composite flowers, such as the dandelion, have many hundreds of flowers in their heads and are difficult to examine for parts, but they are interesting to examine if you have a microscope available. Fruits, however, are more readily available and fun to look into and break down into carpel and seeds. As you work with flowers, remember that some children may be allergic to them or to insects found on them. Make sure medical conditions are known before conducting investigations. The “Activities” section (p. 32) provides additional safety guidelines that should be adopted and enforced to create a safer learning experience for each child.

It is important for children to have their own magnifier as they view plants. The magnifier does not have to be expensive; small plastic magnifiers do a great job. It is also important that children use the magnifier correctly. Bringing the lens to the eye and then down to the subject at a length that will bring the subject into focus will yield the best result. Each plant that children look at or dissect will bring questions that can lead to further investigation. As the parent or teacher, you should join in the spirit of discovery and investigate plants that are new to you as well so that you can demonstrate exploration. As you and young scientists look through a lens or dissect a flower, interesting topics will come up to discuss, research on the internet or in botany books, and share together.

Reference

NGSS Lead States. 2013. *Next Generation Science Standards: For states, by states*. Washington, DC: National Academies Press. www.nextgenscience.org/next-generation-science-standards.

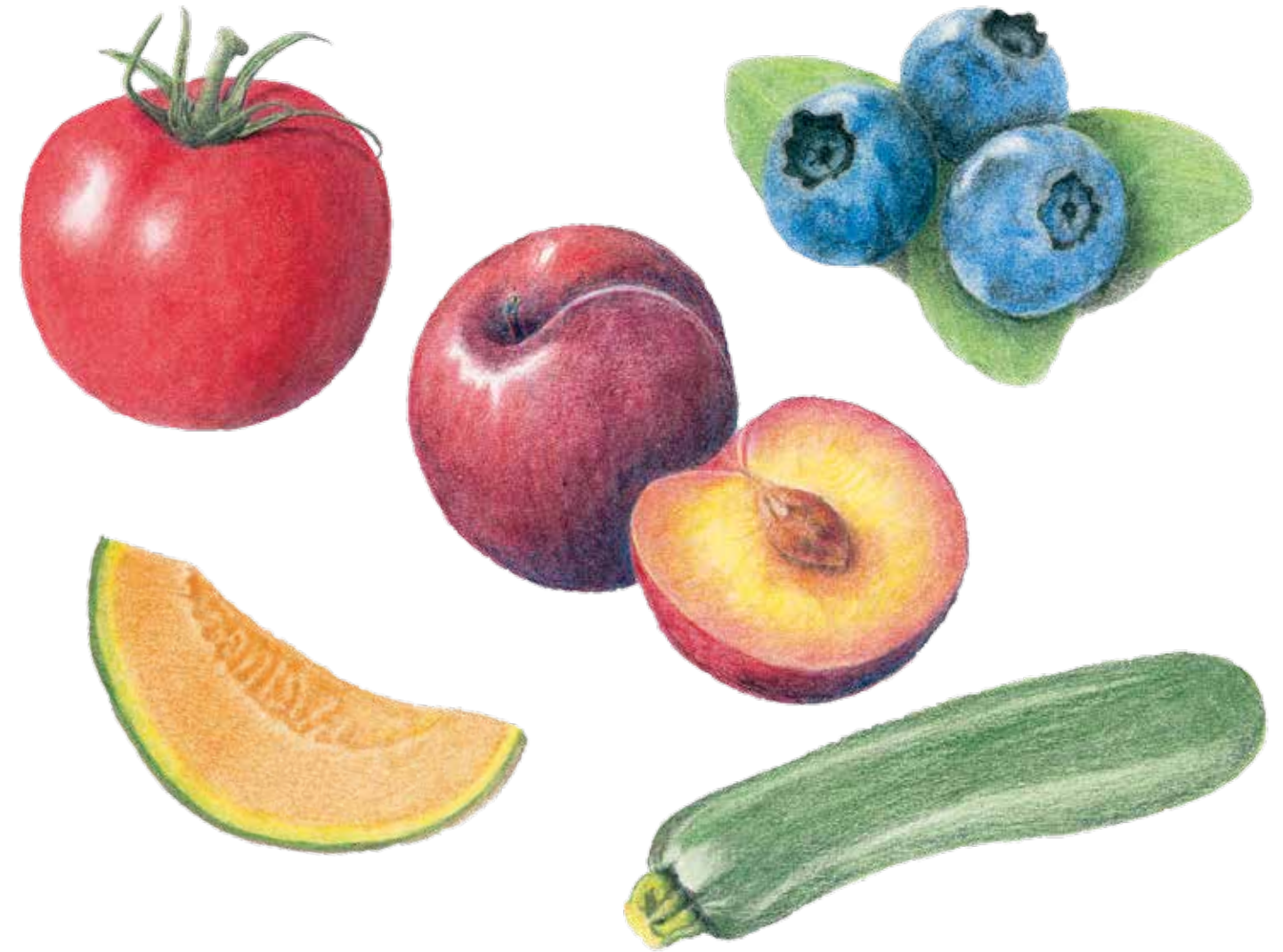
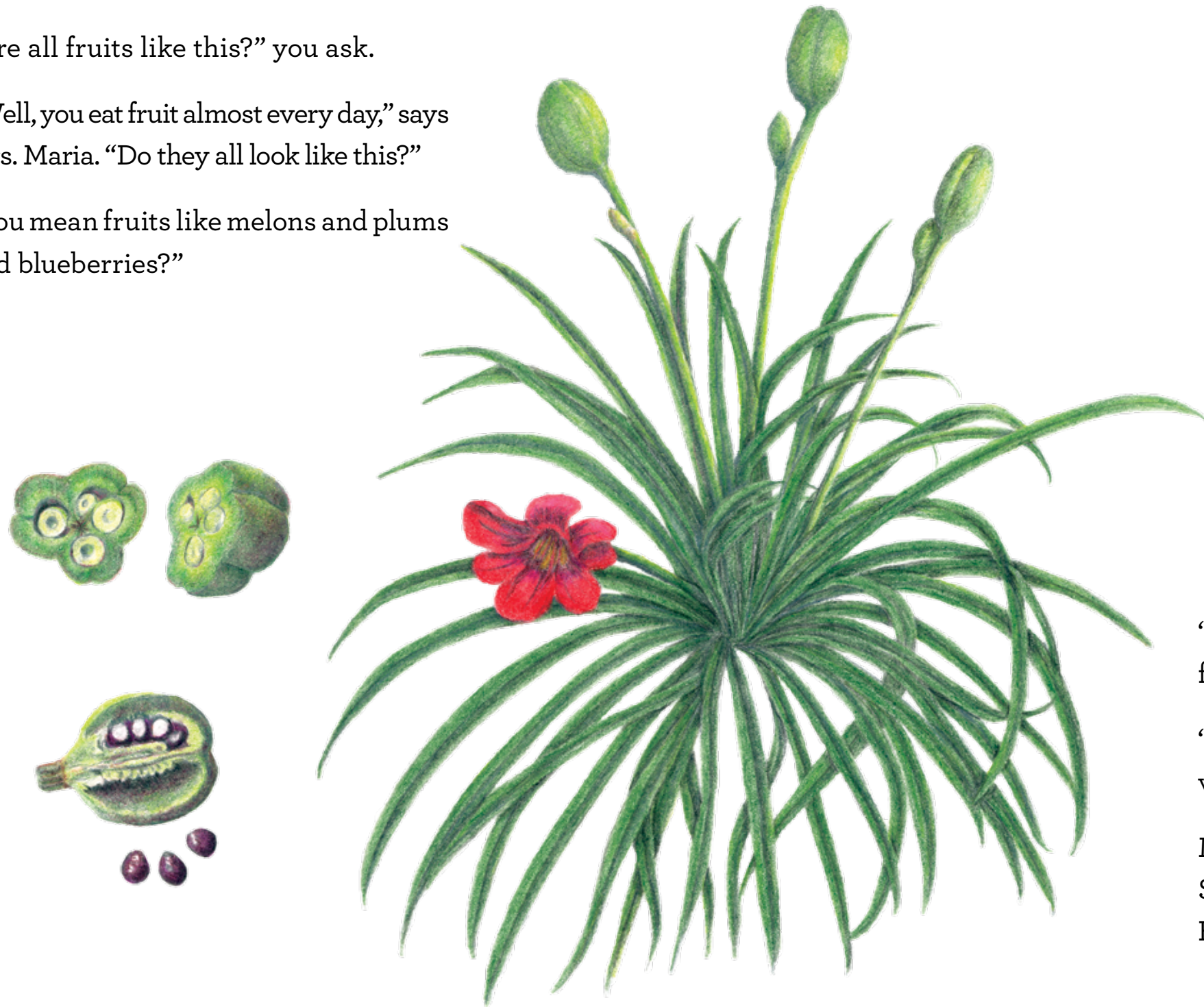


Mr. Ty shows you the daylily fruit and uses scissors to open the fruit down the middle. You see lots of seeds inside. Then, he breaks one crosswise so you can see the inside of the fruit from another angle.

“Are all fruits like this?” you ask.

“Well, you eat fruit almost every day,” says Mrs. Maria. “Do they all look like this?”

“You mean fruits like melons and plums and blueberries?”



“Yes,” says Mr. Ty. “And tomatoes and zucchini, too, but we don’t put them in a fruit salad.”

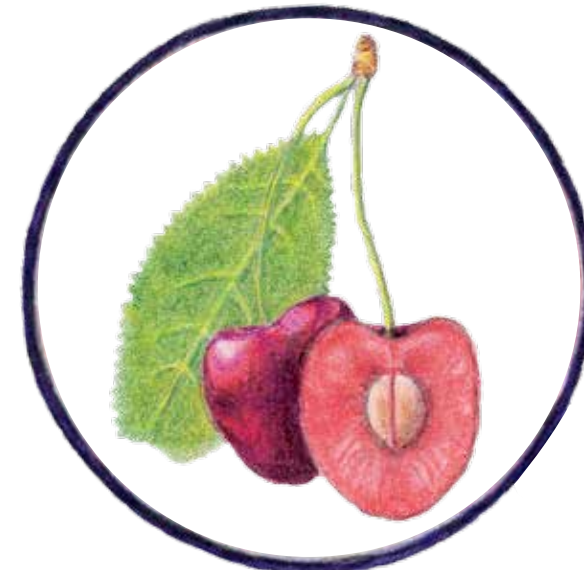
“Tomatoes and zucchini!” you exclaim, laughing. “They’re not fruits, they’re vegetables!”


Mr. Ty explains that scientists consider any vegetable that has seeds in it a fruit. Some of our vegetables do not have seeds, such as celery, sweet potatoes, and carrots. However, many foods that chefs call vegetables scientists would consider fruits.



“Do all fruits get eaten?” you ask.

“Well, some animal usually eats them. Remember how my dogs used to eat the raspberries right off the bushes? But there are other fruits—such as the parachute-like fruits on the dandelion flower—that grow on trees, bushes, or weeds that aren’t all that tasty, even to animals,” Mrs. Maria explains. “And some fruits are made to travel—by flying in the air, floating on the water, or sticking to your socks! You wouldn’t believe all the different forms fruit takes.”





From Flower to Fruit

From Flower to Fruit will transform curious readers—both children and adults—into budding botanists. The book draws you in with rich illustrations and an engaging narrative. But this is more than just a pretty storybook. It sparks curiosity about the parts of a flower and the vital roles of bees and seeds in plant reproduction.

Six kid-friendly activities and background information for parents and teachers complement the text. The authors also encourage you to explore several mysteries:

- How does a seed change as it sprouts into a plant?
- Why do scientists call a tomato a fruit?
- Can some fruits really fly, float, and stick to your socks?

Richard Konicek-Moran and Kathleen Konicek-Moran are a husband-and-wife team of naturalists. Richard is the author of the popular NSTA Press series *Everyday Science Mysteries*, and Kathleen has had her artwork published in a number of publications. Both believe in advancing the importance of botany in children's education. After reading this book, no child will ever look at a flower or fruit in the same way again—and no grown-up will, either!

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