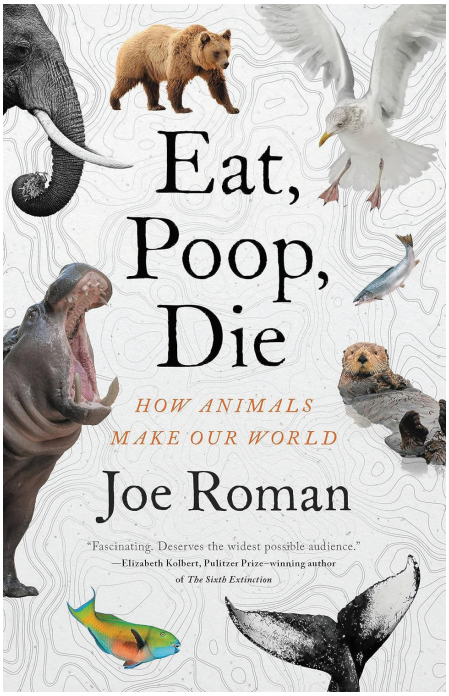
BOOK REVIEWS

KIRSTIN J. MILKS & FRANK BROWN CLOUD, DEPARTMENT EDITORS

Eat, Poop, Die: How Animals Make Our World. By Joe Roman. 2023. Little, Brown Spark. (ISBN 978-0316372923). 277 pp. Paperback. $30.00.



An interesting title, but there is none more fitting for this book. *Eat, Poop, Die* by Joe Roman dives into the world of animals, examining the roles and impacts of these organisms on their ecosystem. I wasn't fully sure what to expect when I picked up this book, but I am pleased to say that it has been both fascinating and informative. Focusing on the three main ways animals influence their environment, this book focuses on the eating, pooping, and dying of animals. Each chapter brings in a different animal, from seabirds that vitalize the volcanic island Surtsey in Iceland, to otters who protect kelp forests.

Everyone knows that animals have to eat; however, there is much more to it than just survival. When animals eat, they partake in the transfer of essential nutrients such as phosphorus and nitrogen. One chapter covers whales, which are a great example of nutrient transfer both vertically and laterally. Whales dive deep into the ocean to feed, bringing nutrients from the deep back up to the surface. They then release these nutrients via their poop and urine, providing a source of nutrition for the krill and plankton that the whale feeds on. This mechanism is called the "whale pump" and serves to transfer elements vertically. However, whales also transfer nutrients laterally via the great distances that whales travel during migration and in search of food.

Focusing more on the pooping of animals, the seabirds in Iceland, which Roman begins the book with, highlight the power of bird guano in starting life. The volcanic island Surtsey was a newly formed piece of land with no life present. But with the help of both pioneer plants and the nitrogen-rich poop from passing seabirds, the island has turned into a lush grassland, even being described as ready for grazing by cattle. For me, I found this to be an eye-opening perspective on the way I viewed animals. Something like bird poop, which I find disgusting and annoying, has the ability to catalyze life.

Lastly, the dying of animals. *Eat, Poop, Die* covers the impact of animal death in both big and small animals. In the chapter that highlights salmon and their quest to spawn and reproduce, the mass death of these fish is emphasized. But the bodies of these fish serve a greater role in the environment, acting as fertilizer for the forest around the rivers. On the other end of the size spectrum, whales are another creature with a big impact. When a whale sinks to the bottom of the ocean, it is called a "whale fall." These falls have two major impacts; first, they act as a carbon sink, taking away carbon dioxide from the atmosphere. This is because the carcass sinks to the seafloor trapping carbon from the air. The examples of natural phenomena presented and the impact animals have is what truly takes this book to the next level.

Roman highlights the importance of animals in the world, emphasizing the changes that need to be implemented to combat issues such as global warming and loss of biodiversity. Animals are powerful players in the fight of ecology and Roman unveils their hidden impact over the course of the book. With intriguing stories and funny jokes woven throughout chapters, Roman is able to capture the attention of the reader and bring them into the world of animals. I previously was not aware of just how much of an impact animals have on the ecosystem, and this book highlights the gap in research present in this area. At the very least, this book has certainly given me a brand-new appreciation for bird poop; although it may ruin my clothes, it also has the power to bring new life to desolate places.

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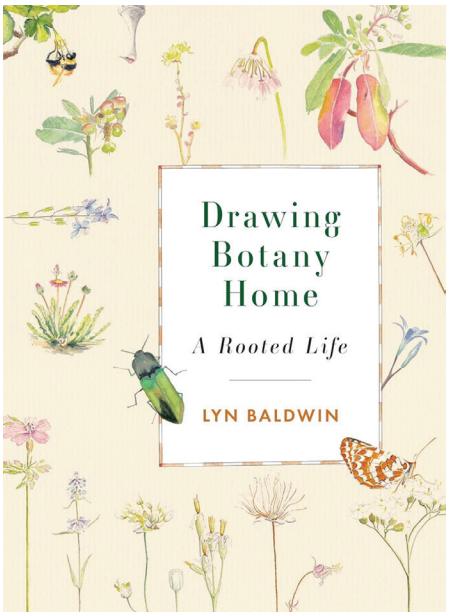
Drawing Botany Home: A Rooted Life. By Lyn Baldwin. 2023. Rocky Mountain Books Ltd. (ISBN 9781771605922). 267 pp. Paperback. $30.00.

The practice of drawing creates the opportunity to pay attention to details. It is one of the reasons that many biology teachers have their students draw what they see with a microscope, rather than use a camera to take pictures. Through the process of creating a drawing, painting or other

The American Biology Teacher, Vol. 87, No. 9, pp. 554–557, ISSN 0002-7685, electronic ISSN 1938-4211. DOI: https://doi.org/10.1525/abt.2025.87.9.554.



art product, people achieve a greater connection with the subject. Nature or field journals can be a way for people to interact with nature. *Drawing Botany Home* is written in a biographical style by a botanist who also became a recognized artist. Lyn Baldwin, the author, tells her life story beginning with a troubled childhood. She uses nature journaling as a way to escape the chaos of her personal life; eventually, her collection of field journals became part of an art show. Throughout the book, the interconnectedness of her life with nature is reflected in her writings. Baldwin's field journaling becomes an escape as well as an intellectual pursuit.

I can see where several of my high school students would identify with Baldwin, as well as perhaps find art as their own escape or therapy. Additionally, nature journaling is something that we have integrated into our curriculum over the years, and the book is filled with examples of different styles of nature journaling that could be shared with students. *Drawing Botany Home* contains examples of zoom in/zoom out, botanical sketches, landscapes and detailed descriptions in poetry, observations, and notes. Additionally, topics such as evolution, carrying capacity, and ecological interactions are depicted and described throughout the book. I could also see this as a book read in a biology class for both the drawing and spending time in nature as a therapy aspect as well as the detailed description of field work. Interested readers will also find botany as a subject and a career topic clearly explained with examples of pressing plants, keeping herbariums, surveying plants, and keeping good records.

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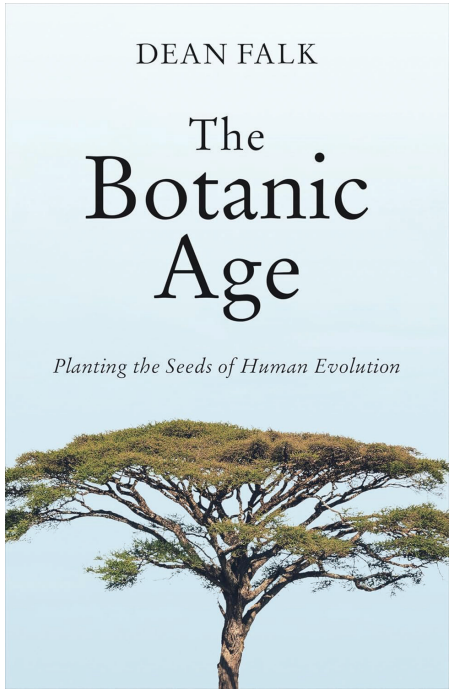
The Botanic Age: Planting the Seeds of Human Evolution. By Dean Falk. 2025. University of Toronto Press. ISBN 978148754 6649. Hardcover. 251 pp. $29.95. eBook also available.



In the cinematic opening of *2001: A Space Odyssey*, an angry hominin becomes the first tool-user, walloping his enemy with a bone club. Many other descriptions of tool use in the ancient past are similar, focusing on the knives and weapons wielded by our ancestors. A timeline of advancement is based on the complexity of knapped stones.

In *The Botanic Age*, Dean Falk asks us to consider an alternate possibility, that the most crucial technological advances weren't stone weapons, but rather baby-carriers and baskets woven from plant materials. There is little support for this in the archaeological record, but that's the crux of it. Stone tools can be buried beneath the dirt and then endure for thousands of years; plant-based technologies cannot. The absence of evidence is exactly what you would predict.

Many primates do seem to practice rudimentary forms of weaving, especially to assemble sleeping nests at night, so it seems likely that our hominin ancestors would have possessed similar skills. And these skills perhaps could have been used to make nets, or baby carriers. But were they?

As a feminist, I like imagining a version of early human evolution in which the pivotal moment of technological innovation wasn't compelled by the desire for violence, but rather a mother's desire to hold onto her baby and to pluck a piece of ripe fruit … at the same time! As someone who spent a lot of time carrying infants in various cloth slings, I can imagine how wonderful it would feel for that first inventor to be able to use both hands again, all without dropping the baby.

And Falk has made a great effort to gather evidence for this story. Obviously, there are no fossilized nets or baby carriers from three million years ago, but Falk considers the foot bone morphology of early hominins (when did our lineage lose our opposable toes?), the differences in sleep patterns between humans and other primates, and the like. Throughout, it's a fun story, replete with compelling tidbits from the scientific literature, but also highly speculative.

I imagine the audience for this is rather niche—educators who would like to be exposed to an intriguing hypothesis that centers caretaking rather than violence in the story of human evolution, and who will feel charmed rather than overwhelmed by an enthusiastic professor's tendency to expound in great detail about whatever evidence might best support their latest theory. If you *are* looking for a well-referenced, speculative essay on ancient human parenting, this might be for you.

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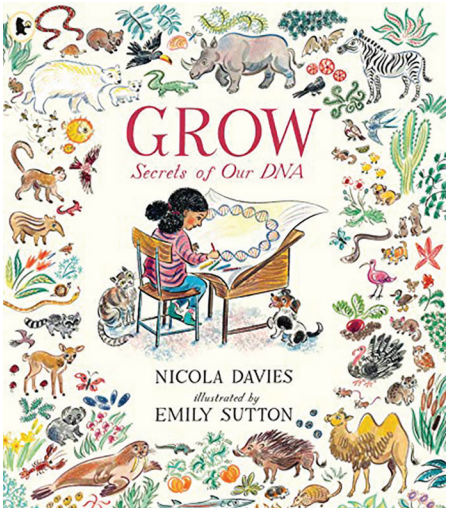
FOR YOUNGER READERS:

Grow: Secrets of Our DNA. By Nicola Davies. Illustrated by Emily Sutton. 2020. Candlewick Press. (ISBN 978-1-5362-1272-3). 40 pages. Hardback $17.99.



Grow: Secrets of Our DNA is an easily understandable way to teach 5- to 9-year-olds about DNA and how it works. The book is beautifully illustrated with imaginative watercolor paintings that should appeal to young children. It explains what DNA is and how the DNA code provides the instructions required to build all living things. The author makes the point that since all living things use DNA, this means that they are all related to one another, even if that relationship is far in the past. The book discusses how humans begin life as a single cell that contains DNA contributed from both their mother and father. This cell then begins to divide over and over. These new cells begin to change according to the instructions held in the DNA code. Eventually the cells form a new organism. This new organism—illustrated in the book by the example of a human baby—grows into an adult according to the instructions coded in its DNA. Eventually, the adult can reproduce and pass on DNA for another new life to begin. The point is made that this happens for all living organisms and that the information in DNA code, which is both similar and different for each type of organism, determines how each type of organism grows in its own unique way.

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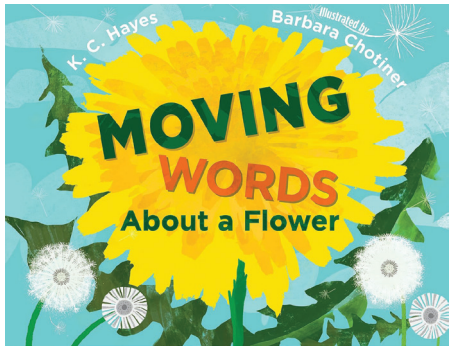
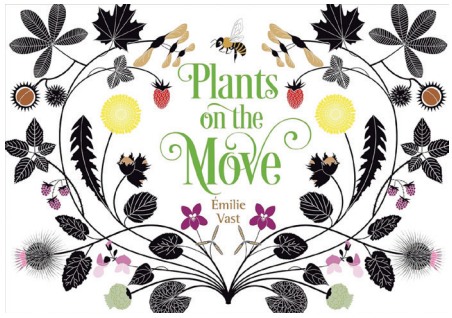
Moving Words About a Flower. By K.C. Hayes and illustrated by Barbara Chotiner. 2022. Charlesbridge Press. (ISBN 1623541654). 40 pp. Hardback. $16.99.



Plants on the Move. By Émilie Vast, translated by Julie Cormier. 2021. English translation. Charlesbridge Press. (ISBN 1623541484). 56 pages. Hardback. $18.99.



Ever blown on a dandelion to make a wish and wondered where those seeds might go? *Moving Words About a Flower* by K.C. Hayes and illustrated by Barbara Chotiner takes you on that journey. Follow a dandelion as it and three of its seeds move from city to country life, through the seasons, and a complete, for some, life cycle. *Moving Words About A Flower* uses colorful language, twisting text, and active illustrations to lead readers through the journey of a familiar wind-pollinated plant. A little dandelion sprout starts growing in a crack in the sidewalk "and opened its yellow petals to a world of gray concrete and CARS." As it blooms and goes to seed, "that evening the dandelion's last three seeds blew away" to a field where they nap in the soil under a snowy blanket on a farm. Spring arrives again, with its own challenges. Our story goes full circle when a little girl blows on the seed head of the seed that journeyed from the city releasing those seeds to a new adventure: "and whoosh! The dandelion seeds sailed away to a brand-new home."

I really loved the message, science, and cycles in this book about a common U.S. weed (i.e., unloved flower) familiar to kids in cities and rural areas alike. The seasonality of the book emphasizes the quick lifespan of dandelions and how wind dispersal can help plants spread to different environments. The backmatter supports the text nicely with a beautiful life cycle, which includes the scientific terms "pappus" and "rosette," and other supporting information. What really makes this book is the illustrations and active arrangement of the text as part of the illustrations. For example, the words "and opened its yellow petals" are stacked on top of each other forming a layer of petals. Text arches in rainbows, shoves itself into boots, stripes the back of bees, and bursts forth as a fluffy ball of seeds. While it is fun to read, initially, I was concerned that the text might be difficult for kids with learning disabilities to read. My concerns were unfounded. For a Girl Scout troop meeting (ages 6–10) where we planted seeds, we read this book and *Plants on the Move* (reviewed below). The girls, a handful of whom have dyslexia, loved the book and had no troubles with the artful text. Instead, it was their favorite part! *Moving Words About a Flower* does an excellent job of creatively capturing kids' imaginations on what adventures the seeds they wish on may experience.

Meanwhile, what organisms fly, creep, fall, whirl, bounce, cling, explode, float, burrow, and more? Yes, still plants! *Plants on the Move* by Émilie Vast is a beautiful nonfiction gem for any budding botanist's bookshelf. Divided into chapters based on the type of movement, *Plants on the Move* features plants familiar to U.S. and U.K. kids alike—dandelions, strawberries, thistle, maple trees, blackberries, violets, water lilies, and more. At the end of each chapter, there are other examples of plants using that type of dispersal, so kids are inspired to keep their eyes out for others. Elegant, clean, and botanically correct illustrations make this book beautiful as well as scientifically accurate. The illustrations emphasize different types of roots, seeds, fruits, and leaves to facilitate fabulous comparisons between the chapters. My botanist husband agreed that the illustrations accurately represent key characteristics of each species. *Plants on the Move* is quite packed with information, but without feeling so. In addition to plants dispersing themselves, there are also chapters on plants moved and planted by animals. The book closes with those plants cultivated and spread by humans.

Plants on the Move is an incredible reference book. I would have loved to have this book as a kid and I'm quite certain I would have classified every plant in our yard and forest by movement type using this book. Overall, I love how clean, clear, and elegant the language and the illustrations are. It's accessible to younger readers and inspiring to budding naturalists. The clean lines of leaves, fruits, and flowers provide excellent examples of how to capture the essence of plants in a naturalist's notebook. As noted above, we read it along with *Moving Words About a Flower* for a Girl Scout meeting where we were planting seeds and talking about gardening. It was a bit much for the youngest girls, but the older ones were transfixed. What would be super fun would be to focus on 2 chapters a week, starting in the winter. Kids could try to find, eat, or grow some of the different kinds of plants to compare. Then by the spring, they would have a knowledge base of plant movement and do a small plant collection or observation journal. Excuse me, I need to go plan a new meeting and share *Plants on the Move* with our local nature center.

Both books:

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