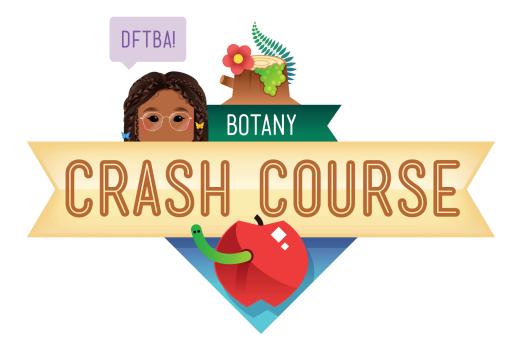
Crash Course Botany Sources



Episode 1: What Is Botany? Episode 2: What Are Plants Made of? Episode 3: Plant Cells & Hormones Episode 4: What's in Plant Tissue? Episode 5: Photosynthesis & Cellular Respiration Episode 6: How Did Plants Evolve? Episode 7: How Do We Categorize Plants? Episode 8: Bryophytes & Seedless Vascular Plants Episode 9: Gymnosperms & Angiosperms Episode 10: Mendel & Plant Genetics Episode 11: What Are GMOs? Episode 12: Plant Relationships & Ecology Episode 13: Plants' Role in Ecosystems Episode 14: Plants & Biomes Episode 15: The Future of Botany

Episode 1: What is Botany?

- 1. BMC Plant Biology | <u>Transcriptome analysis of the model grass Lolium temulentum exposed to green</u> <u>leaf volatiles</u>
- 2. Frontiers in Plant Science | Roles for jasmonate- and ethylene-induced transcription factors in the ability of Arabidopsis to respond differentially to damage caused by two insect herbivores
- 3. PLoS One | Differential Metabolisms of Green Leaf Volatiles in Injured and Intact Parts of a Wounded Leaf Meet Distinct Ecophysiological Requirements
- 4. BMC Plant Biology | <u>Transcriptome analysis of the model grass Lolium temulentum exposed to green</u> <u>leaf volatiles</u>
- 5. KCUR | That Fresh-Cut Grass Smell? MU Researchers Say It's Your Grass 'Crying'
- 6. NPR | Size of the Giant Sequoia
- 7. Clinical Nutrition | Protein bioavailability of Wolffia globosa duckweed, a novel aquatic plant A randomized controlled trial
- 8. Library of Congress | What is the smallest flower in the world?
- 9. NPR | What's In It For The Corpse Flower To Smell Like Death?
- 10. Brittanica | Durian
- 11. Succulent City | The Brain Cactus 'Stenocactus Multicostatus' (Mammillaria Elongata 'Cristata')
- 12. Monticello | Cockscomb Celosia cristata
- 13. Wisconsin Horticulture | Living Stones: Lithops
- 14. Library of Congress | What is the largest flower in the world? | Library of Congress
- 15. Introductory Biology (CK-12) | <u>9.2: Importance of Plants Biology LibreTexts</u>
- 16. NC State Extension | Commercial Luffa Sponge Gourd Production | NC State Extension Publications
- 17. USDA U.S. Forest Service | Soaps
- 18. Royal Horticultural Society | Plants in our daily life
- 19. American Forests | 7 Everyday Items Made from Trees
- 20. Brittanica | Coffea
- 21. Brittanica | Avocado
- 22. New York Times | Baseball History Is No Longer Written With Ash Bats
- 23. Dartmouth | The Dark Side of Music: Clarinets, Woodwinds and the Mpingo Tree
- 24. HowStuffWorks | How many sheets of paper can be produced from a single tree?
- 25. Plants, People, Planet | Plants and people: Our shared history and future
- 26. National Geographic | domestication
- 27. National Geographic | The Development of Agriculture
- 28. World Bank | Urban Development Overview
- 29. PNAS | Plant domestication, a unique opportunity to identify the genetic basis of adaptation
- 30. Scientific American | How Have Plants Shaped Human Societies?
- 31. Minnesota Historical Society | Buffalo Bird Woman's Garden
- 32. New York Botanical Garden | Black Botany: The Nature of Black Experience
- 33. Botanical Society of America | Botanical literacy: What and how should students learn about plants?
- 34. USDA | Organic 101: What the USDA Organic Label Means
- 35. NPR | Why Organic Food May Not Be Healthier For You
- 36. WHO | Food, genetically modified
- 37. The National Academy of Sciences | Genetically Engineered Crops: Experiences and Prospects

38. Brittanica | <u>Salt</u>

- 39. Plants, People, Planet | Plant awareness disparity: A case for renaming plant blindness
- 40. Scientific American | Do Plants Think?

Episode 2: What Are Plants Made of?

- 1. Betts, J. G. et al. <u>Anatomy and Physiology</u> (2013). OpenStax publishing group.
- 2. The Royal Society | Divergence time estimates for the early history of animal phyla and the origin of plants, animals and fungi
- 3. Annual Review of Ecology, Evolution, and Systematics | <u>The Evolution of Multicellularity: A Minor Major</u> <u>Transition?</u>
- 4. Annual Review of Earth and Planetary Sciences | The Multiple Origins of Complex Multicellularity
- 5. Mayo Clinic | Stem cells: What they are and what they do
- 6. T. A. Steeves & I. M. Sussex. Patterns in Plant Development (1989). Cambridge University Press.
- 7. Merriam-Webster | Meristem
- 8. Raven, P. H., Evert, R. F., & Eichhorn, S. E. (2005). Biology of Plants. 7th ed. New York: WH Freeman.
- 9. Brittanica | Vascular system
- 10. Quanta Magazine | Why Are Plants Green? To Reduce the Noise in Photosynthesis
- 11. Merriam-Webster | Phyllotaxis
- 12. NPR | Vegetables Are Made Up
- 13. Cambridge University Press | Anatomy of Flowering Plants: Organs, Cells, and Tissues
- 14. Brittanica | Fruit
- 15. Brittanica | <u>Strawberry</u>
- 16. The Washington Post | The obscure Supreme Court case that decided tomatoes are vegetables
- 17. United States Supreme Court | NIX v. HEDDEN, 149 U.S. 304 (1893)
- 18. Brittanica | Berry
- 19. Digital Atlas of Ancient Life | Fruits
- 20. Merriam-Webster | Banyan
- 21. Darwin, Charles, 1809-1882. On the Origin of Species by Means of Natural Selection, or Preservation of Favoured Races in the Struggle for Life. London: John Murray, 1859.
- 22. American Heart Association | Fruits and Vegetables Serving Sizes Infographic
- 23. University of Wisconsin, Madison | <u>Composite showing the formation, growth, and emergence of a</u> <u>lateral root from pericycle tissue of a willow root seen in cross-section</u>

Episode 3: Plant Cells & Hormones

- 1. Brittanica | Cork
- Hooke, R. (1665). <u>Micrographia: Some Physiological Descriptions of Minute Bodies Made by</u> <u>Magnifying Glasses with Observations and Inquiries Thereupon.</u> Project Gutenberg, Urbana, Illinois.
- 3. Brittanica | Cell
- 4. Brittanica | <u>Cell membrane</u>
- 5. Brittanica | <u>Ribosome</u>
- 6. PMC | Modeling to Understand Plant Protein Structure-Function Relationships—Implications for Seed Storage Proteins

- 7. Medline Plus | What are proteins and what do they do?
- 8. Brittanica | Eukaryote
- 9. Brittanica | <u>Organelle</u>
- 10. Brittanica | Prokaryote
- 11. Evert, R. F. (2006). <u>Esau's Plant anatomy: meristems, cells, and tissues of the plant body: their</u> <u>structure, function, and development</u>. 3rd ed. John Wiley & Sons, Inc., Hoboken, New Jersey.
- 12. Brittanica | Nucleus
- 13. Raven, P. H., Evert, R. F., & Eichhorn, S. E. (2005). Biology of Plants. 7th ed. New York: WH Freeman.
- 14. Brittanica | Photosynthesis
- 15. Brittanica | Turgor
- 16. Brittanica | <u>Cellulose</u>
- 17. Encyclopedia of Energy Storage | Organic Compound
- 18. NASA | Key Building Block for Organic Molecules Discovered in Meteorites
- 19. Zhu, Hongli, et al. "<u>Anomalous scaling law of strength and toughness of cellulose nanopaper.</u>" Proceedings of the National Academy of Sciences 112.29 (2015): 8971-8976.
- 20. Brittanica | Cell division and growth
- 21. PMC | <u>Plasmodesmata in integrated cell signalling: insights from development and environmental</u> <u>signals and stresses</u>
- 22. Brittanica | Ethylene
- 23. Scientific American | The Origin of Fruit Ripening
- 24. Miller, Erston V. "The story of ethylene." The Scientific Monthly 65.4 (1947): 335-342.
- 25. USDA | Ethylene
- 26. Bleecker, Anthony B., and Hans Kende. "Ethylene: a gaseous signal molecule in plants." *Annual review of cell and developmental biology* 16.1 (2000): 1-18.
- 27. NPR | Science Reveals How Fruit Keeps A Lid On Ripening Until The Time Is Right
- 28. Doerner, Peter. "Plant Meristems: Cytokinins—the alpha and omega of the meristem." *Current Biology* 17.9 (2007): R321-R323.
- 29. Enders, Tara A., and Lucia C. Strader. "Auxin activity: Past, present, and future." American journal of botany 102.2 (2015): 180-196.
- 30. Weijers, Dolf, Jennifer Nemhauser, and Zhenbiao Yang. "Auxin: small molecule, big impact." Journal of Experimental Botany 69.2 (2018): 133-136.
- 31. Teale, William D., Ivan A. Paponov, and Klaus Palme. "Auxin in action: signalling, transport and the control of plant growth and development." Nature reviews Molecular cell biology 7.11 (2006): 847-859.
- 32. Carnegie Institution for Science | <u>Cell elongation is regulated through a central circuit of interacting</u> <u>transcription factors in the Arabidopsis hypocotyl</u>
- 33. PNAS | Coordination of auxin-triggered leaf initiation by tomato
- 34. Brittanica | Vascular system
- 35. Braam, Janet. "In touch: plant responses to mechanical stimuli." *New Phytologist* 165.2 (2005): 373-389.
- 36. Gazzarrini, Sonia, and Peter McCourt. "Cross-talk in plant hormone signalling: what Arabidopsis mutants are telling us." Annals of botany 91.6 (2003): 605-612.
- 37. De Jong, Maaike, et al. "The Solanum lycopersicum AUXIN RESPONSE FACTOR 7 (SIARF7) mediates cross-talk between auxin and gibberellin signalling during tomato fruit set and development." Journal of Experimental Botany 62.2 (2011): 617-626.

- 38. (If we want to dive into some German) Barlow, P. W. (1982). The Plant Forms Cells, Not Cells the Plant :The Origin of de Bary's Aphorism. Annals of Botany 49:269-271
- 39. Sitte, Peter. (1992). A MODERN CONCEPT OF THE "CELL THEORY:" A PERSPECTIVE ON COMPETING HYPOTHESES OF STRUCTURE. Int. J. Plant Sci. 153(3):S1-S6
- 40. House of Switzerland | The mystical and mythical edelweiss

Episode 4: What's In Plant Tissue?

- 1. Brittanica | <u>Tissue</u>
- 2. Georgia Tech Biological Sciences | Plant Development I: Tissue differentiation and function
- 3. Brittanica | <u>Stinging nettle</u>
- 4. Brittanica | Dermal tissue Angiosperm
- 5. Prozherina, Nadezhda, et al. "Interactive effect of springtime frost and elevated ozone on early growth, foliar injuries and leaf structure of birch (Betula pendula)." New Phytologist 159.3 (2003): 623-636.
- 6. Raven, P. H., Evert, R. F., & Eichhorn, S. E. (2005). Biology of Plants. 7th ed. New York: WH Freeman.
- 7. Brittanica | Basic planetary data Earth
- 8. Brittanica | <u>Xylem</u>
- 9. Evert, R. F. (2006). Esau's Plant Anatomy: meristems, cells, and tissues of the plant body: their structure, function, and development. 3rd ed. John Wiley & Sons, Inc., Hoboken, New Jersey.
- 10. ScienceDirect | Transpiration
- 11. Plant, Cell and Environment | <u>Allocation, stress tolerance and carbon transport in plants: how does</u> phloem physiology affect plant ecology?
- 12. Brittanica | Phloem
- 13. Brittanica | <u>Vascular system</u>
- 14. Brittanica | <u>Starch</u>
- 15. Cheadle Center for Biodiversity and Ecological Restoration | The Life of Katherine Esau
- 16. Thorsch, Jennifer A., and Ray F. Evert. "Katherine Esau, 1898-1997." Annual review of phytopathology 36 (1998): 26.
- 17. O'Hern, Elizabeth Moot. "Profiles of pioneer women scientists: Katherine Esau." The Botanical Review 62.3 (1996): 209-271.
- 18. Esau, K., and Russel, D. E. 1991. <u>Katherine Esau: A Life of Achievements.</u> Davidson Library Oral History Program. University of California, Santa Barbara.
- 19. California Department of Food & Agriculture | Pierce's Disease
- 20. Pennsylvania State University | Tobacco Mosaic Virus (TMV)
- 21. PMC | Developmental Changes in Cell and Tissue Water Relations Parameters in Storage Parenchyma of Sugarcane'
- 22. University of Wisconsin, Madison | Shoot
- 23. Georgia Tech Biological Sciences | Sugar Transport in Plants: Phloem
- 24. Nature | Unveiling the Casparian strip

Episode 5: Photosynthesis & Cellular Respiration

- 1. University of California Agriculture & Natural Resources | Photosynthesis & Respiration
- 2. Brittanica | <u>Biomass</u>

- 3. National Geographic | Photosynthesis
- 4. Lewis Center for Educational Research | Learning Science Wrestling with the vocabulary
- 5. Brittanica | What is the basic formula for photosynthesis?
- 6. Khan Academy | Light-dependent reactions (photosynthesis reaction)
- 7. ScienceDirect | Light-Dependent Reactions
- 8. Concepts in Biology (OpenStax) | 5.2: The Light-Dependent Reactions of Photosynthesis
- 9. Biology Online | Light-independent reaction
- 10. Visible Body | Zooming into Chloroplasts: Light-Dependent and Light-Independent Reactions of Photosynthesis
- 11. Botany (Ha, Morrow, and Algiers) | <u>13.6: Light-independent Reactions</u>
- 12. Byjus's Learning | Do plants photosynthesize at night?
- 13. BBC | Use of glucose made by photosynthesis Food supply, plant growth and productivity
- 14. BBC | Cellular respiration
- 15. Frontiers in Young Minds | How Table Sugar Is Produced From Sugar Beets
- 16. Planting Science | Cellular Respiration
- 17. Sea-Earth-Atmosphere (SEA) | Energy from the Sun
- 18. Brittanica | Cellular respiration
- 19. Curious Minds Science Learning Hub | Mitochondria cell powerhouses
- 20. NIH National Human Genome Research Institute | Mitochondria
- 21. Khan Academy | Steps of cellular respiration
- 22. Brittanica | Adenosine triphosphate | Definition, Structure, Function, & Facts
- 23. Introductory Biology (CK-12) | 2.31: Anaerobic and Aerobic Respiration
- 24. Microbiology (Kaiser) | 18.3: Aerobic Respiration
- 25. Journal of Chemical Education | Yield of ATP Molecules per Glucose Molecule
- 26. Byju's Learning | What Is Fermentation? Definition, Types, Anaerobic Respiration
- 27. Thompson Rivers University | <u>4.11 Anaerobic Processes Human Biology</u>
- 28. BBC | <u>Anaerobic respiration What happens during cellular respiration?</u>
- 29. U.S. Energy Information Administration (EIA) | Biofuels explained
- 30. Food and Agriculture Organization of the United Nations | Crops and livestock products
- 31. ScienceDirect | Electricity generation from defective tomatoes
- 32. Kids Activities Blog | How to Make a Super Cool Lemon Battery for the Science Fair
- 33. South Dakota Mines | Turning Tomatoes Into Electricity
- 34. Design News | Researchers Turn to Rotten Tomatoes for Biofuel
- 35. And Now U Know | Researchers Turn Tomato Waste Into Energy Source
- 36. Biofuel.org | Types of Biofuels Solid Biofuels
- 37. U.S. Energy Information Administration (EIA) | Ethanol explained use of ethanol
- 38. International Energy Agency | Carbon neutrality | Bioenergy
- 39. U.S. Environmental Protection Agency | Economics of Biofuels

Episode 6: How Did Plants Evolve?

- 1. Brittanica | Proterozoic Eon
- 2. Brittanica | Food chain
- 3. Brittanica | Oxygen cycle

- 4. Brittanica | Precambrian
- 5. Zimorski, Verena, et al. "Endosymbiotic theory for organelle origins." Current opinion in microbiology 22 (2014): 38-48
- 6. Nature Communications | <u>The plastid ancestor originated among one of the major cyanobacterial</u> <u>lineages</u>
- 7. PNAS | Early photosynthetic eukaryotes inhabited low-salinity habitats
- 8. ScienceDirect | Cyanobacteria
- 9. Brittanica | Blue-green algae
- 10. Keeling, Patrick J. "The number, speed, and impact of plastid endosymbioses in eukaryotic evolution." Annu Rev Plant Biol 64.1 (2013): 583-607.
- 11. Arizona State University | Endosymbiotic Theory
- 12. Brittanica | DNA
- 13. Brittanica | Allele
- 14. Brittanica | Dominance
- 15. Fray, Rupert G., and Donald Grierson. "Identification and genetic analysis of normal and mutant phytoene synthase genes of tomato by sequencing, complementation and co-suppression." Plant molecular biology 22.4 (1993): 589-602.
- 16. Tobler, Michi. 2022. <u>A Primer of Evolution An Introduction to Evolutionary Thought: Theory, Evidence,</u> <u>and Practice.</u> Kansas State University Open/Alternative Textbook Initiative.
- 17. Brittanica | Tomato
- 18. Su, Danyan, et al. "Large-scale phylogenomic analyses reveal the monophyly of bryophytes and neoproterozoic origin of land plants." Molecular biology and evolution 38.8 (2021): 3332-3344.
- 19. Kansas State University | Chapter 6 Evolutionary Mechanisms II: Mutation, Genetic Drift, Migration, and Non-Random Mating | A Primer of Evolution
- 20. Raven, P. H., Evert, R. F., & Eichhorn, S. E. (2005). Biology of Plants. 7th ed. New York: WH Freeman.
- 21. Brittanica | <u>Cucurbitaceae</u>
- 22. Brittanica | Paleontology
- 23. Knoll, Andrew H. "The multiple origins of complex multicellularity." Annual Review of Earth and Planetary Sciences 39 (2011): 217-239.
- 24. Brittanica | Plant | Definition, Evolution, Ecology, & Taxonomy
- 25. Biology (OpenStax) | 20.1 Organizing Life on Earth Biology 2e
- 26. Plant Development and Evolution | The role of plant root systems in evolutionary adaptation
- 27. Bear, Robert et al. 2022. Principles of Biology. OpenStax CNX.
- 28. University of California Press | Nothing in Biology Makes Sense except in the Light of Evolution

Episode 7: How Do We Categorize Plants?

- 1. International Orchid Foundation | Dracula simia
- 2. Nature | Number of species on Earth tagged at 8.7 million
- 3. Quanta Magazine | Billion-Year-Old Algae and Newer Genes Hint at Land Plants' Origin
- 4. National Library of Medicine | <u>Plant zygote development: recent insights and applications to clonal</u> <u>seeds</u>
- 5. PMC | Genetic activity during early plant embryogenesis
- 6. Evert, R. F., & Eichhorn, S. E. (2013). Raven Biology of Plants. 8th ed. New York: WH Freeman.

- 7. PMC | Flowering plant embryos: How did we end up here?
- 8. Brittanica | Gametophyte
- 9. Brittanica | Spore
- 10. Brittanica | Alternation of generations
- 11. UC Davis | Life Cycles: Meiosis and the Alternation of Generations
- 12. PEDIAA | Difference Between Taxonomy and Systematics
- 13. ScienceDirect | Helianthus annuus
- 14. Brittanica | <u>Asteraceae</u>
- 15. Clinics in Dermatology | Plant taxonomy
- 16. University of Oxford | Plants: the known unknowns which are undermining conservation
- 17. PBS | Ynés Mexía: Mexican-American Botanist and Adventurer
- 18. California Botanical Society | Ynes Mexia
- 19. California Botanical Society | What is Taxonomy?
- 20. Brittanica | Carolus Linnaeus Classification by "natural characters"
- 21. British Ecological Society | <u>Well grounded: Indigenous Peoples' knowledge, ethnobiology and</u> sustainability
- 22. Journal of Ethnobiology and Ethnomedicine | Indigenous knowledge for plant species diversity: a case study of wild plants' folk names used by the Mongolians in Ejina desert area, Inner Mongolia, P. R. China
- 23. Atlas Obscura | Marang
- 24. Current Biology | Engagement with indigenous people preserves local knowledge and biodiversity alike
- 25. Kew Royal Botanic Gardens | Artocarpus odoratissimus Blanco
- 26. Inverse | <u>Scientists were baffled by this fruit's quirky biology but indigenous people knew the answer</u> for centuries
- 27. Nature | One tree or two? Genes confirm Iban traditional knowledge in Borneo
- 28. Current Biology | Engagement with indigenous people preserves local knowledge and biodiversity alike
- 29. ScienceDirect | Species Concept
- 30. PNAS | Ernst Mayr and the modern concept of species
- 31. Digital Atlas on Ancient Life | The Land Plant Life Cycle
- 32. Blackwell Publishing | Ecological species concept
- 33. Merriam-Webster | Vegetable Definition & Meaning
- 34. Kew Royal Botanic Gardens | State of the World's Plants 2017
- 35. Kew Royal Botanic Gardens | State of the World's Plants and Fungi 2020

Episode 8: Bryophytes & Seedless Vascular Plants

- 1. PMC | The Origin of Land Plants: A Phylogenomic Perspective
- 2. Oxford Academic Annals of Botany | <u>Major transitions in the evolution of early land plants: a bryological</u> <u>perspective</u>
- 3. Nature | Phylogenetic Trees and Monophyletic Groups
- 4. Brittanica | Evolution and paleobotany
- 5. Su, Danyan, et al. "Large-scale phylogenomic analyses reveal the monophyly of bryophytes and neoproterozoic origin of land plants." Molecular biology and evolution 38.8 (2021): 3332-3344.
- 6. Bear, Robert et al. 2022. Principles of Biology. OpenStax CNX.

- 7. Biology (OpenStax) | 20.2 Determining Evolutionary Relationships
- 8. Taylor & Francis Online | Evolution of land plants: insights from molecular studies on basal lineages
- 9. Springer Open | Early life on land and the first terrestrial ecosystems
- 10. Introductory Biology (CK-12) | 9.4: Early Evolution of Plants
- 11. Brittanica | Rhizoid
- 12. Brittanica | <u>Bryophyte</u>
- 13. Oxford Reference | Rhizoid
- 14. Raven, P. H., Evert, R. F., & Eichhorn, S. E. (2005). Biology of Plants. 7th ed. New York: WH Freeman.
- 15. Brittanica | Moss
- 16. ScienceDirect | Stomata
- 17. Science Daily | Biologists discover origin of stomata
- 18. International Union for Conservation of Nature Peatland Programme | About Peatlands
- 19. Brittanica | Liverwort | plant
- 20. Missouri Department of Conservation | Liverworts
- 21. Biology (OpenStax) 25.3 Bryophytes
- 22. USDA Forest Service | Post-wildfire moss colonization and soil functional enhancement in forests of the southwestern USA
- 23. Northern Arizona University School of Forestry | Role of mosses in post-forest fire restoration
- 24. Brittanica | Bryophyte Morphology and evolution
- 25. Brittanica | Wilhelm Hofmeister | German botanist
- 26. Current Biology | Wilhelm Hofmeister and the foundations of plant science
- 27. PMC | Living together and living apart: the sexual lives of bryophytes
- 28. Biology (Kimball) | 16.3B: Moss Life Cycle Biology LibreTexts
- 29. Brittanica | Alternation of generations
- 30. Biology (OpenStax) | 11.1 The Process of Meiosis Biology 2e
- 31. General Biology (Boundless) | 25.4A: Seedless Vascular Plants
- 32. Brittanica | Lower vascular plant | Definition, Taxonomy, Physical Characteristics, & Facts
- 33. Introductory Biology (CK-12) | 9.4: Early Evolution of Plants
- 34. Botany in Hawai'i (Daniela Dutra Elliott and Paula Mejia Velasquez) | 6.2: Alternation of generations
- 35. Raven Biology 12th Edition | 29.3A: Seedless Vascular Plants
- 36. Lumen | Seedless Vascular Plants | Biology for Majors II
- 37. Brittanica | <u>Club moss</u>
- 38. Brittanica | <u>Spike moss</u>
- 39. Current Biology | Palaeobotany: The Rise of the Earth's Early Forests
- 40. Brittanica | Ferns and seed plants
- 41. Los Angeles Times | Jurassic Plants
- 42. Brittanica | Mosquito fern | Description, Uses, & Facts
- 43. University of Tübingen | How a floating fern withstands the rain
- 44. Brittanica | Whisk fern | plant genus

Episode 9: Gymnosperms & Angiosperms

- 1. Brittanica | Cucurbitales
- 2. Brittanica | Falling Far from the Tree: 7 Brilliant Ways Seeds and Fruits Are Dispersed

- 3. Lumen Learning | Evolution of Seed Plants | Biology for Non-Majors II
- 4. Linkies, Ada, et al. "The evolution of seeds." New Phytologist 186.4 (2010): 817-831.
- 5. Taylor, Edith L., Thomas N. Taylor, and Michael Krings. *Paleobotany: the biology and evolution of fossil plants.* Academic Press, 2009.
- 6. PMC | The distribution, diversity, and conservation status of Cycas in China
- 7. Brittanica | Conifer
- 8. Brittanica | <u>Ginkgo</u>
- 9. Montreal Gazette | The Right Chemistry: What's that stink near ginkgo trees in the fall?
- 10. Brittanica | Gnetophyte | Definition, Plants, Characteristics, Reproduction, Examples, & Facts
- 11. PMC | The Emergence of Earliest Angiosperms may be Earlier than Fossil Evidence Indicates
- 12. Brittanica | Angiosperm
- 13. Friis, E. M., and A. Skarby. "Structurally preserved angiosperm flowers from the Upper Cretaceous of southern Sweden." *Nature* 291.5815 (1981): 484-486.
- 14. Danish Women's Biographical Lexicon | Else Marie Friis
- 15. Friis, Else Marie, Peter R. Crane, and Kaj Raunsgaard Pedersen. *Early flowers and angiosperm evolution*. Cambridge University Press, 2011.
- 16. National Geographic | The Big Bloom—How Flowering Plants Changed the World
- 17. Brittanica | Angiosperm Process of reproduction
- 18. Theissen, Guenter, and Rainer Melzer. <u>"Molecular mechanisms underlying origin and diversification of</u> <u>the angiosperm flower.</u>" *Annals of botany* 100.3 (2007): 603-619.
- 19. Science X | Researchers report evidence that fruit plants evolved to offer seed dispersers an attractive scent
- 20. New Phytologist | The Angiosperm Terrestrial Revolution and the origins of modern biodiversity
- 21. Science.org | How Angiosperms Took Over the World
- 22. Byju's Learning | Process & Significance Of Double Fertilization
- 23. Brittanica | Double fertilization

Episode 10: Mendel & Plant Genetics

- 1. University of West Florida | The History of DNA: From Crime Scenes to Consumer Goods
- 2. NIH National Human Genome Research Institute | Mendelian Inheritance
- 3. Brittanica | Gregor Mendel
- 4. Nature | Gregor Mendel: A Private Scientist
- 5. NIH | Nirenberg History Gregor Mendel
- 6. Nature | <u>Gregor Mendel and the Principles of Inheritance</u>
- 7. Human Biology (Gabor Gyurkovics) | 16.2: Mendel's Experiments and Laws of Inheritance
- 8. Curious Minds New Zealand | Mendel's experiments
- 9. Smithsonian Magazine | Evolution World Tour: Mendel's Garden, Czech Republic
- 10. Brittanica | Genetics
- 11. Brittanica | <u>Heredity</u>
- 12. NIH National Human Genome Research Institute | Phenotype
- 13. NIH National Human Genome Research Institute | Genotype
- 14. General Biology (Boundless) | 12.3B: Mendel's Law of Dominance
- 15. NIH National Human Genome Research Institute | Diploid

- 16. NIH National Human Genome Research Institute | Allele
- 17. NIH National Human Genome Research Institute | Dominant
- 18. University of Washington | Genotypes and phenotypes
- 19. NIH National Human Genome Research Institute | Recessive Traits and Alleles
- 20. General Biology (Boundless) 12.3C: Mendel's Law of Segregation
- 21. NIH National Human Genome Research Institute | Haploid
- 22. NIH National Human Genome Research Institute | Gamete
- 23. Rutgers University | Basic Mendelian Genetics
- 24. Nature | Principle of independent assortment
- 25. CK-12 | Genetic Variation
- 26. Concepts of Biology (1st Canadian Edition) | 8.1 Mendel's Experiments
- 27. BMC Springer Nature | Genomic insight into balancing high yield, good quality, and blast resistance of japonica rice
- 28. PMC | Properties of human disease genes and the role of genes linked to Mendelian disorders in complex disease aetiology
- 29. Royal Society Publishing | Genetics of complex traits: prediction of phenotype, identification of causal polymorphisms and genetic architecture
- 30. NIH National Institute of General Medical Sciences | <u>Four Ways Inheritance Is More Complex Than</u> <u>Mendel Knew</u>
- 31. NIH National Human Genome Research institute | Mutation
- 32. Nature | Genetic Mutation
- 33. Cornell University | Bt Eggplant
- 34. Cornell Chronical | Crops hold harmful mutations that reduce productivity
- 35. UC Berkeley | DNA and Mutations Understanding Evolution
- 36. Georgia Institute of Technology | Mendelian Genetics
- 37. Introductory Biology (CK-12) | 3.1: Mendel's Pea Plants
- 38. QJM | Did Mendel falsify his data?
- 39. Wolfram | Experimental Errors and Error Analysis
- 40. ScienceDirect | Population Genetics
- 41. Nature | Introduction to Population Demographics
- 42. Stanford University | Population Genetics
- 43. Smithsonian Magazine | <u>Women's Contributions to Early Genetics Studies Were Relegated to the</u> <u>Footnotes</u>

Episode 11: What Are GMOs?

- 1. Iowa State University | Scientists take major step in understanding domestication of corn
- 2. Sustainable, Secure Food Blog | Polyploidy or how do we get seedless fruit?
- 3. Crop Science Society of America | Cool beans: beneficial faba braves a freeze
- 4. Brittanica | Gene editing | Definition, History, & CRISPR-Cas9
- 5. ScienceDirect | Selective Breeding
- 6. Tobler, Michi. 2022. <u>A Primer of Evolution: An Introduction to Evolutionary Thought: Theory, Evidence,</u> <u>and Practice.</u> Kansas State University Open/Alternative Textbook Initiative.
- 7. National Geographic | Artificial Selection

- 8. Brittanica | Plant breeding
- 9. Nature | <u>Genotyping-by-sequencing of Brassica oleracea vegetables reveals unique phylogenetic</u> patterns, population structure and domestication footprints
- 10. Talking Biotech | Brassica oleracea The Dog of the Plant World
- 11. U.S. Department of Agriculture | Brassica oleracea: the dog of the plant world
- 12. Oxford University Press | The Cabbage of the Animal Kingdom? (A) Dogs (C. familiaris) are...
- 13. Cambridge University | Plant breeding and climate changes
- 14. ICARDA | Climate Smart Crops
- 15. Food and Agriculture Organization of the United Nations | Feeding spineless cactus to cattle for drought resilience, Kenya
- 16. Food and Agriculture Organization of the United Nations | <u>Spineless cactus fodder making for resilient</u> <u>livestock keepers</u>
- 17. Cornell University | Micronutrients on the Cob
- 18. Nature | Reinventing quantitative genetics for plant breeding: something old, something new, something borrowed, something BLUE
- 19. PMC | <u>Cisgenic plants are similar to traditionally bred plants: International regulations for genetically</u> modified organisms should be altered to exempt cisgenesis
- 20. Purdue University | What are GMOs?
- 21. Scientific American | Are You Scared of GMO Foods?
- 22. PMC | Agrobacterium-Mediated Plant Transformation: the Biology behind the "Gene-Jockeying" Tool
- 23. GoldBio | A Quick Overview of Agrobacterium for Plant Transformation
- 24. The Arabidopsis Book | Agrobacterium-Mediated Plant Transformation
- 25. MedlinePlus | What are genome editing and CRISPR-Cas9?
- 26. Brittanica | <u>CRISPR</u>
- 27. Cornell University | Gene Editing FAQ
- 28. International Potato Center | About
- 29. PNAS | The genome of cultivated sweet potato contains Agrobacterium T-DNAs with expressed genes: An example of a naturally transgenic food crop
- 30. NPR | Natural GMO? Sweet Potato Genetically Modified 8,000 Years Ago
- 31. Smithsonian Magazine | The First GMO Is 8,000 Years Old
- 32. Purdue University | Do GMOs harm health?
- 33. Harvard University | <u>Will GMOs Hurt My Body? The Public's Concerns and How Scientists Have</u> <u>Addressed Them</u>
- 34. Slot, M. M., et al. "The assessment of field trials in GMO research around the world and their possible integration in field trials for variety registration." *Transgenic Research* 27.4 (2018): 321-329.
- 35. Norwegian University of Life Sciences | <u>Global Regulation of Genetically Modified Crops Amid the Gene</u> <u>Edited Crop Boom</u>
- 36. Cornell University | 10 Myths About GMOs
- 37. National Agri-Food Biotechnology Institute | <u>Biofortified Crops Generated by Breeding, Agronomy, and</u> <u>Transgenic Approaches Are Improving Lives of Millions of People around the World</u>
- 38. Cornell University | Unfairly demonized GMO crops can help fight malnutrition
- 39. The Golden Rice Project | The Golden Rice Project
- 40. NYU Langone Health | Genetically Modified Organisms: The Golden Rice Debate
- 41. Washington University in St. Louis | No clear path for golden rice to reach consumers

- 42. NPR | As Biotech Crops Lose Their Power, Scientists Push For New Restrictions
- 43. Merriam-Webster | <u>Transgenic</u>
- 44. Max Planck Institute for Molecular Plant Physiology | <u>A new synthetic biology approach allows transfer</u> of an entire metabolic pathway from a medicinal plant to a biomass crop
- 45. PMC | <u>Cisgenic plants are similar to traditionally bred plants: International regulations for genetically</u> modified organisms should be altered to exempt cisgenesis
- 46. PMC | The HcrVf2 gene from a wild apple confers scab resistance to a transgenic cultivated variety
- 47. Plant Biotechnology Journal | <u>Molecular characterization of cisgenic lines of apple 'Gala' carrying the</u> <u>Rvi6 scab resistance gene</u>
- 48. North Carolina State University | <u>What Is the Difference Between Genetically Modified Organisms and</u> <u>Genetically Engineered Organisms?</u>
- 49. Advances in Crop Science and Technology | Transgenic, Cisgenic, Intragenic and Subgenic Crops
- 50. Nature | <u>Simultaneous editing of three homoeoalleles in hexaploid bread wheat confers heritable</u> resistance to powdery mildew
- 51. MIT | Chinese Researchers Stop Wheat Disease with Gene Editing

Episode 12: Plant Relationships & Ecology

- 1. Frontiers in Conservation Science | <u>What Are the Grand Challenges for Plant Conservation in the 21st</u> <u>Century?</u>
- 2. Brittanica | <u>Symbiosis</u>
- 3. Brittanica | Mycorrhiza
- 4. ScienceDirect | Ectosymbiont
- 5. Brittanica | Mutualism
- 6. Nature | Mighty Mutualisms: The Nature of Plant-pollinator Interactions
- 7. Johnson, Steven D., Anton Pauw, and Jeremy Midgley. "Rodent pollination in the African lily Massonia depressa (Hyacinthaceae)." American Journal of Botany 88.10 (2001): 1768-1773.
- 8. Brittanica | Commensalism
- 9. Brittanica | Bromeliaceae
- 10. Brittanica | Community ecology Commensalism and other types of interaction
- 11. Brittanica | Parasitism
- Vereecken, Nicolas J. "Deceptive behavior in plants. I. Pollination by sexual deception in orchids: a host–parasite perspective." Plant-environment interactions. Springer, Berlin, Heidelberg, 2009. 203-222.
- 13. National Library of Medicine | <u>Global dynamics of parasitism-competition systems with one host and</u> <u>multiple parasites</u>
- 14. Brittanica | Conservation
- 15. Ferreira, Paula Iaschitzki, et al. "Mimosa scabrella Benth. as Facilitator of Forest Successional Advance in the South of Brazil." Floresta e Ambiente 26 (2019).
- 16. Biology (OpenStax) | Ch. 47 Key Terms Biology
- 17. USDA Forest Service | Botanists Team Up to Recover Holy Ghost Ipomopsis
- 18. CropWild Relatives | In situ and ex situ conservation
- 19. Brittanica | Community ecology
- 20. National Parks Conservation Association | Restoring the "River of Grass"

- 21. U.S. National Park Service | Sawgrass Prairie Everglades
- 22. Rutgers University | FS1255: Ecology and Control of the Freshwater Aquatic Plant Spatterdock
- 23. University of Florida | Nuphar advena
- 24. U.S. National Park Service | Ecosystems: Hardwood Hammock Everglades National Park
- 25. South Florida Terrestrial Ecosystems Lab | Freshwater Wetlands
- 26. U.S. National Park Service | Ecosystems: Mangrove Everglades National Park
- 27. University of Montana | Marjory Stoneman Douglas
- 28. Journal of Ecology | The evolution of facilitation and mutualism
- 29. U.S. Department of Agriculture | Big Sagebrush Artemisia tridentata Nuttall
- 30. Brittanica | Competition
- 31. Oxford Bibliographies | Competition in Plant Communities
- 32. University of Florida | Allelopathy
- 33. USDA Forest Service Invasive Species
- 34. Columbia University | Cheatgrass, an invasive species
- 35. U.S. National Park Service | An Ecosystem Transformer: Cheatgrass Lassen Volcanic National Park
- 36. U.S. Geological Survey | Cheatgrass and Medusahead
- 37. Botanical Survey of India | Ex-Situ Conservation
- 38. PMC | <u>Wild Plant Species with Extremely Small Populations Require Conservation and Reintroduction</u> in China
- 39. U.K. Department for Environment, Food & Rural Affairs | <u>How to stop invasive non-native plants from</u> <u>spreading</u>
- 40. Government of the Netherlands | Controlling invasive alien species

Episode 13: Plants' Role in Ecosystems

- 1. Brittanica | Ecosystem
- 2. National Geographic | Ecosystem
- 3. U.S. National Park Service | <u>A Complex Prairie Ecosystem Tallgrass Prairie National Preserve</u>
- 4. Bruno Corbara, Camille Bonhomme, Jean-Francois Carrias, Régis Cereghino, Olivier Dézerald, et al. <u>Tank Bromeliads: aquatic life at the heart of plants</u>. *ESpèces - Revue d'Histoire naturelle*, 2019.
- 5. U.S. Environmental Protection Agency | Vernal Pools
- 6. National Geographic | <u>Autotroph</u>
- 7. Brittanica | <u>Photosynthesis</u>
- 8. Roger Williams University | 7.1 Primary Production Introduction to Oceanography
- 9. National Geographic | <u>Heterotrophs</u>
- 10. Biology for Majors II (Lumen) | 11.24: Heterotrophic Plants
- 11. Harvard University | A beautiful parasite
- 12. Brittanica | Herbivore
- 13. National Geographic | Carnivore
- 14. National Geographic | Omnivore
- 15. National Geographic | <u>Decomposers</u>
- 16. National Geographic | Food Chain
- 17. National Geographic | Food Web
- 18. Nebraska Game and Parks Commission | Insects of the Nebraska Tallgrass Prairie

- 19. U.S. National Park Service | Birds at Tallgrass Prairie National Preserve
- 20. Iowa Department of Natural Resources | <u>Seeds and Snakes, Flower and Fox: Inside the Prairie Food</u> <u>Web</u>
- 21. U.S. National Park Service | Reptiles of the Preserve Tallgrass Prairie National Preserve
- 22. Euphytica | <u>Distribution</u>, ecology and reproductive biology of wild tomatoes and related nightshades from the Atacama Desert region of northern Chile
- 23. Journal of Arid Environments | <u>Seasonal diet of the burrowing owl Athene cunicularia Molina, 1782</u> (<u>Strigidae</u>) in a hyperarid ecosystem of the Atacama desert in northern Chile
- 24. Jaksic Andrade, Fabián, and P. A. Marquet. "Food habits of Pseudalopex foxes in the Atacama desert, pre-Andean ranges, and the high Andean plateau of northernmost Chile." (1993).
- 25. Gastronomica | On the Tomato Trail: In Search of Ancestral Roots
- 26. U.C. Davis | Roger T. Chetelat
- 27. National Geographic | Keystone Species
- 28. Brittanica | Keystone species
- 29. U.S. National Park Service | Sonoran Desert Network Ecosystems
- 30. USDA Forest Service | Saguaro
- 31. Drezner, Taly Dawn. "The keystone saguaro (Carnegiea gigantea, Cactaceae): a review of its ecology, associations, reproduction, limits, and demographics." Plant Ecology 215.6 (2014): 581-595.
- 32. U.S. National Park Service | Threats to the Saguaro
- 33. Luiz, Blaine C., et al. "A framework for establishing a rapid 'Ōhi 'a death resistance program." New Forests (2022): 1-24.
- 34. Hawaii Invasive Species Council | Rapid Ohia Death
- 35. U.S. National Park Service | Ohia Lehua Trees
- 36. Big Island Gazette | Legislation Introduced to Combat Rapid Ohia Tree Death
- 37. U.S. Fish and Wildlife Service Pacific Region | 'Ohi'a lehua: the Foundation of Hawaii's Forest
- 38. Hawai'i Forest Institute & Hawai'i Forest Industry Association | Rapid Ohia Death
- 39. The 'Ōhi'a Challenge | Grand Prize Winner: Dr. Ryan Perroy

Episode 14: Plants & Biomes

- 1. National Geographic | The Five Major Types of Biomes
- 2. Byju's Learning | Population
- 3. Brittanica | Ecosystem
- 4. ScienceDirect | Biome
- 5. Brittanica | <u>Ecotone</u>
- 6. Arizona State University | Biomes of the World
- 7. General Biology (Boundless) | <u>26.4C: Biodiversity of Plants</u>
- 8. New Hampshire Department of Environmental Services | <u>Aquatic Plants and Their Role in Lake</u> <u>Ecology</u>
- 9. The Physical Environment (Ritter) | 13.3: Savanna Biome
- 10. Brittanica | <u>Savanna Flora</u>
- 11. Brittanica | <u>Biodiversity</u>
- 12. The Guardian | What is biodiversity and why does it matter to us?
- 13. Collins English Dictionary | Nutrient cycling definition and meaning

- 14. U.S. Geological Survey | Evapotranspiration and the Water Cycle
- 15. Brittanica | Water cycle
- 16. Brittanica | Photosynthesis
- 17. Brittanica | Carbon cycle
- 18. National Geographic | Autotroph
- 19. U.S. Environmental Protection Agency | Frequently Asked Questions About Climate Change
- 20. U.S. Environmental Protection Agency | Basics of Climate Change
- 21. Choat, Brendan, et al. "Triggers of tree mortality under drought." Nature 558.7711 (2018): 531-539.
- 22. University of Washington | <u>High CO2 levels cause plants to thicken their leaves, which could worsen</u> <u>climate change effects, researchers say</u>
- Parmesan, C., M.D.Morecroft, Y. Trisurat, R.Adrian, G.Z.Anshari, A.Arneth, Q.Gao, P.Gonzalez, R.Harris, J.Price, N. Stevens, and G.H. Talukdarr, 2022: Terrestrial and Freshwater Ecosystems and Their Services. In: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 197–377, doi:10.1017/9781009325844.004.
- 24. National Geographic | Rainforest
- 25. World Wide Fund for Nature (WWF) | Amazon wildlife
- 26. National Geographic | Carbon Sources and Sinks
- 27. Ypsilanti District Library | The Secret Life of Pine Cones
- 28. Land Trust Alliance | Early Spring Impacts Conservation in a Changing Climate
- 29. Columbia University | Climate Change Poses Challenges to Plants and Animals
- 30. The New York Times | Tree Planting Is Booming. Here's How That Could Help, or Harm, the Planet
- 31. Greenpeace | <u>'How are we going to live?' Families dispossessed of their land to make way for Total's</u> Congo offsetting project
- 32. National Science Foundation | Seagrasses restored to Virginia bays are flourishing
- 33. National Assembly of Bhutan | Constitution of Bhutan
- 34. Climate Council | How did Bhutan become the first carbon negative country?

Episode 15: The Future of Botany

- 1. Stanford University | Aristotle
- 2. Journal of Experimental Botany | Role of plant sensory perception in plant-animal interactions
- 3. Brittanica | Do Plants Feel Pain?
- 4. Plant, Cell, & Environment | Are plants sentient?
- 5. Seminars in Cell & Developmental Biology | Sound perception in plants
- 6. Scientific American | Can Plants Hear?
- 7. PLOS ONE | Aboveground mechanical stimuli affect belowground plant-plant communication
- 8. The New York Times | Are Trees Talking Underground? For Scientists, It's in Dispute.
- 9. National Science Foundation | New Roots for Restoration
- 10. NASA | Apollo 8: Earthrise
- 11. NASA | Lunar Rocks and Soils from Apollo Missions
- 12. ScienceNews | These are the first plants grown in moon dirt

- 13. Nature | Plants grown in Apollo lunar regolith present stress-associated transcriptomes that inform prospects for lunar exploration
- 14. The Conversation | How forgotten beans could help fight malnutrition in Africa
- 15. World Intellectual Property Organization | Traditional Knowledge
- 16. USDA Forest Service | Ethnobotany
- 17. PMC | Vital roles for ethnobotany in conservation and sustainable development
- 18. 500 Women Scientists | An Ethnobotanist & the Plants of Her People
- 19. Brittanica | Salish
- 20. Plants, People, Planet | <u>Unlocking plant resources to support food security and promote sustainable</u> <u>agriculture</u>
- 21. Scientific American | How Fertilizers Harm Earth More Than Help Your Lawn
- 22. Our World in Data | Emissions by sector
- 23. International Energy Agency | Carbon neutrality
- 24. Design News | Researchers Turn to Rotten Tomatoes for Biofuel
- 25. Climate Nexus | Animal Agriculture's Impact on Climate Change
- 26. MIT | Why do we compare methane to carbon dioxide over a 100-year timeframe? Are we underrating the importance of methane emissions?
- 27. U.S. Environmental Protection Agency | Importance of Methane
- 28. New Phytologist | The growing and vital role of botanical gardens in climate change research
- 29. New Phytologist | Using herbaria to study global environmental change