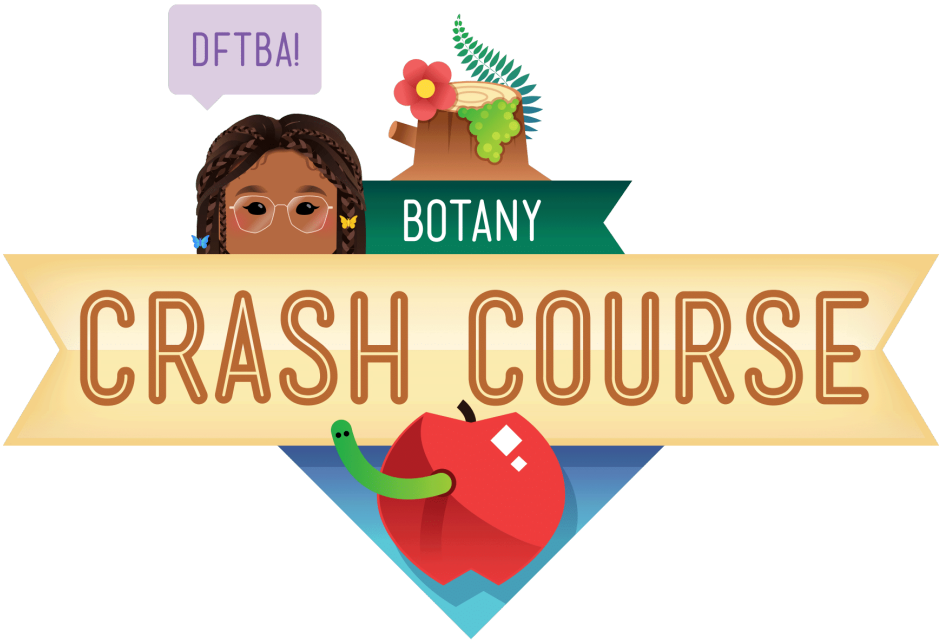
Crash Course Botany Sources



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Episode 13: Plants' Role in Ecosystems
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Episode 15: The Future of Botany

Episode 1: What is Botany?

1. BMC Plant Biology | Transcriptome analysis of the model grass Lolium temulentum exposed to green leaf volatiles
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 | Transcriptome analysis of the model grass Lolium temulentum exposed to green leaf volatiles
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) | 9.2: Importance of Plants - Biology LibreTexts
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 | Salt
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. Anatomy and Physiology (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 | The Evolution of Multicellularity: A Minor Major Transition?
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 | Strawberry
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 | Composite showing the formation, growth, and emergence of a lateral root from pericycle tissue of a willow root seen in cross-section

Episode 3: Plant Cells & Hormones

1. Brittanica | Cork
2. Hooke, R. (1665). Micrographia: Some Physiological Descriptions of Minute Bodies Made by Magnifying Glasses with Observations and Inquiries Thereupon. Project Gutenberg, Urbana, Illinois.
3. Brittanica | Cell
4. Brittanica | Cell membrane
5. Brittanica | Ribosome
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 | Organelle
10. Brittanica | Prokaryote
11. 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.
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 | Cellulose
17. Encyclopedia of Energy Storage | Organic Compound
18. NASA | Key Building Block for Organic Molecules Discovered in Meteorites
19. Zhu, Hongli, et al. "Anomalous scaling law of strength and toughness of cellulose nanopaper." Proceedings of the National Academy of Sciences 112.29 (2015): 8971-8976.
20. Brittanica | Cell division and growth
21. PMC | Plasmodesmata in integrated cell signalling: insights from development and environmental signals and stresses
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 | Cell elongation is regulated through a central circuit of interacting transcription factors in the Arabidopsis hypocotyl
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 (SlARF7) 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 | Tissue
2. Georgia Tech Biological Sciences | Plant Development I: Tissue differentiation and function
3. Brittanica | Stinging nettle
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 | Xylem
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 | Allocation, stress tolerance and carbon transport in plants: how does phloem physiology affect plant ecology?
12. Brittanica | Phloem
13. Brittanica | Vascular system
14. Brittanica | Starch
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. Katherine Esau: A Life of Achievements. 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 | Biomass

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) | 13.6: Light-independent Reactions
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 | 4.11 Anaerobic Processes – Human Biology
28. BBC | Anaerobic respiration - What happens during cellular respiration?
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 | The plastid ancestor originated among one of the major cyanobacterial lineages
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. A Primer of Evolution - An Introduction to Evolutionary Thought: Theory, Evidence, and Practice. 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 | Cucurbitaceae
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 | Plant zygote development: recent insights and applications to clonal seeds
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 | Asteraceae
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 | Well grounded: Indigenous Peoples' knowledge, ethnobiology and 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 | Scientists were baffled by this fruit's quirky biology — but indigenous people knew the answer 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 | Major transitions in the evolution of early land plants: a bryological perspective
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 | Bryophyte
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 | Club moss
38. Brittanica | Spike moss
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 | Ginkgo
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. "Molecular mechanisms underlying origin and diversification of the angiosperm flower." *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 | Gregor Mendel and the Principles of Inheritance
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 | Heredity
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 | Four Ways Inheritance Is More Complex Than Mendel Knew
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 | Women's Contributions to Early Genetics Studies Were Relegated to the Footnotes

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. A Primer of Evolution: An Introduction to Evolutionary Thought: Theory, Evidence, and Practice. Kansas State University Open/Alternative Textbook Initiative.
7. National Geographic | Artificial Selection

8. Brittanica | Plant breeding
9. Nature | Genotyping-by-sequencing of Brassica oleracea vegetables reveals unique phylogenetic 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 | Spineless cactus fodder making for resilient livestock keepers
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 | Cisgenic plants are similar to traditionally bred plants: International regulations for genetically 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 | CRISPR
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 | Will GMOs Hurt My Body? The Public’s Concerns and How Scientists Have Addressed Them
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 | Global Regulation of Genetically Modified Crops Amid the Gene Edited Crop Boom
36. Cornell University | 10 Myths About GMOs
37. National Agri-Food Biotechnology Institute | Biofortified Crops Generated by Breeding, Agronomy, and Transgenic Approaches Are Improving Lives of Millions of People around the World
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 | Transgenic
44. Max Planck Institute for Molecular Plant Physiology | A new synthetic biology approach allows transfer of an entire metabolic pathway from a medicinal plant to a biomass crop
45. PMC | Cisgenic plants are similar to traditionally bred plants: International regulations for genetically 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 | Molecular characterization of cisgenic lines of apple 'Gala' carrying the Rvi6 scab resistance gene
48. North Carolina State University | What Is the Difference Between Genetically Modified Organisms and Genetically Engineered Organisms?
49. Advances in Crop Science and Technology | Transgenic, Cisgenic, Intragenic and Subgenic Crops
50. Nature | Simultaneous editing of three homoeoalleles in hexaploid bread wheat confers heritable resistance to powdery mildew
51. MIT | Chinese Researchers Stop Wheat Disease with Gene Editing

Episode 12: Plant Relationships & Ecology

1. Frontiers in Conservation Science | What Are the Grand Challenges for Plant Conservation in the 21st Century?
2. Brittanica | Symbiosis
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
12. 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 | Global dynamics of parasitism-competition systems with one host and multiple parasites
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 | Wild Plant Species with Extremely Small Populations Require Conservation and Reintroduction in China
39. U.K. Department for Environment, Food & Rural Affairs | How to stop invasive non-native plants from spreading
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 | A Complex Prairie Ecosystem - Tallgrass Prairie National Preserve
4. Bruno Corbara, Camille Bonhomme, Jean-Francois Carrias, Régis Cereghino, Olivier Dézerald, et al. Tank Bromeliads: aquatic life at the heart of plants. *ESpèces - Revue d'Histoire naturelle*, 2019.
5. U.S. Environmental Protection Agency | Vernal Pools
6. National Geographic | Autotroph
7. Brittanica | Photosynthesis
8. Roger Williams University | 7.1 Primary Production – Introduction to Oceanography
9. National Geographic | Heterotrophs
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 | Decomposers
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 | Seeds and Snakes, Flower and Fox: Inside the Prairie Food Web
21. U.S. National Park Service | Reptiles of the Preserve - Tallgrass Prairie National Preserve
22. Euphytica | Distribution, ecology and reproductive biology of wild tomatoes and related nightshades from the Atacama Desert region of northern Chile
23. Journal of Arid Environments | Seasonal diet of the burrowing owl Athene cunicularia Molina, 1782 (Strigidae) 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 ʻŌhi ʻa 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 | ʻŌhiʻa lehua: the Foundation of Hawaii's Forest
38. Hawaiʻi Forest Institute & Hawaiʻi Forest Industry Association | Rapid Ohia Death
39. The ʻŌhiʻa 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 | Ecotone
6. Arizona State University | Biomes of the World
7. General Biology (Boundless) | 26.4C: Biodiversity of Plants
8. New Hampshire Department of Environmental Services | Aquatic Plants and Their Role in Lake Ecology
9. The Physical Environment (Ritter) | 13.3: Savanna Biome
10. Brittanica | Savanna - Flora
11. Brittanica | Biodiversity
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 | High CO2 levels cause plants to thicken their leaves, which could worsen climate change effects, researchers say
23. 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 | 'How are we going to live?' Families dispossessed of their land to make way for Total's 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 | Unlocking plant resources to support food security and promote sustainable agriculture
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