
Historical Curriculum

George Washington Carver (1864-1943)

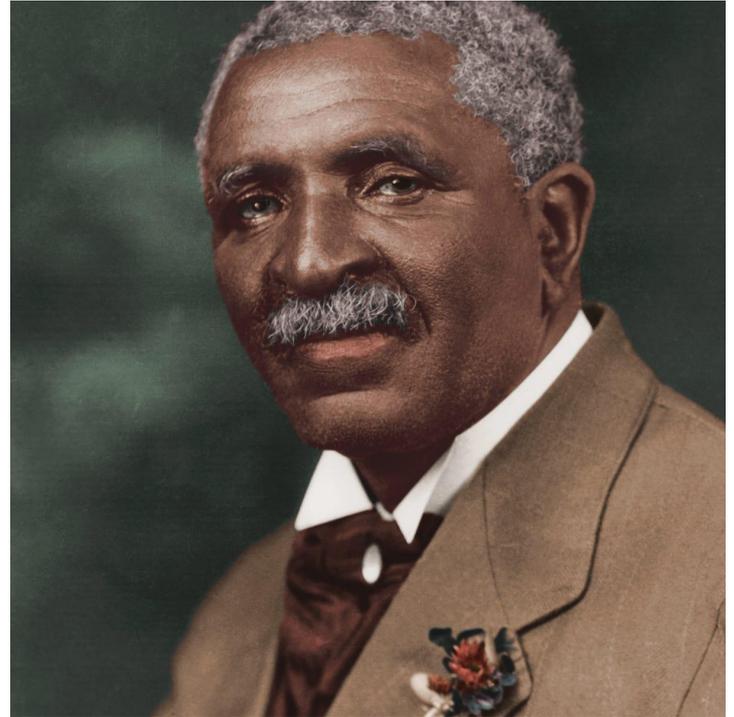
Carver was a botanist, inventor, and teacher. He was also a leader in promoting environmentalism.

He was born on a farm near Diamond, Missouri into slavery and in 1894, became the first Black person to own a Bachelor of Science degree.

He earned his master's degree in agricultural science from Iowa State University, and taught at Tuskegee University.

Key Research: He developed crop rotation techniques that involved peanuts, sweet potatoes, and cotton.

He became known as the "Peanut Man" because he found ways to make around 300 different foods from peanuts.



Marie Clark Taylor (1911-1990)

She was the first Black woman to receive a Ph.D in botany from Fordham University and the first woman to earn a science PhD from Fordham University.

She became the Head of Botany at Howard University from 1947 to 1976.

Key Research: At Fordham, she did research on photomorphogenesis, which means the influence of light on plant growth.



Terri Long

Long grew up in North Carolina but has traveled to all but two continents doing research.

She currently works within the Plant Biology Department at NC State University

She does important work on nutrition deficiency, which is a global problem and understanding how plants operate when nutrient deprived can lead to solutions to global hunger.

Key Research: She uses molecular biology, biochemistry, and systems biology to understand how plants respond to nutrient stress



Maria Elena Zavala (1950-)

Zavala grew up in Laverne, California and her parents used to be farmers.

She went to Pomona College and majored in botany and is currently a professor of biology at California State University-Northridge.

She is a plant biologist who was the first Mexican-American to earn a PhD in botany in the United States and first Latina fellow of the American Society of Plant Biologists.

Key Research: She is studying plant development, and specifically the structure of roots. She focuses on the crops bean and corn, aiming to create crops that can resist cooler temperatures.



Edmond Albius (1829-1880)

He revolutionized the cultivation of vanilla by discovering a technique of hand-pollination that changed the vanilla industry forever. He was just 12 years old at the time and enslaved on a plantation.

He eventually received his freedom but was not given the reconciliation he deserved during his lifetime.

Key Research: He invented the hand-pollination technique for commercial vanilla production. We wouldn't be enjoying vanilla today without him.



Kevin Cox

Cox grew up in Florissant, Missouri in the Hazelwood School District.

He attended the University of Missouri, as he worked as a lab assistant at the Danforth Center. He then completed his PhD in plant pathology at Texas A&M University. After he graduated, he landed a postdoctoral position in the Meyers Lab at the Danforth Center.

He was selected as a Hanna H. Gray Fellow, which is granted to only 15 scientists nationally.

Key Research: He does research on which genes are key for plants to defend themselves against microbes. His work involves genetics, bioimaging, and plant pathology.

He aims to study plant-microbe interactions at the single cellular level. He also promotes science online through his online alter ego named "Bioguy."



O'Neil R. Collins (1931-1989)

Collins completed his bachelor's degree in botany at Southern University in Baton Rouge.

Collins was awarded the Miller Professorship in 1974 and was chairman of the Department of Botany at UC Berkeley, where he was the first Black faculty member in the Botany Department.

Key Research: He discovered multiple mating type alleles and is an expert on slime-mold genetics.



Professor Nox Makunga

A professor of Biotechnology at Stellenbosch University in South Africa.

She earned her PhD from the University of KwaZulu-Natal in 2004, where she worked on the molecular biology of plants.

Key Research: She specializes in the study of medicinal plants and the sustainable use of them. She uses biotechnology to explore plants.



Tessa Burch-Smith

Dr. Burch-Smith is an Associate Professor at University of Tennessee, who focuses on Biochemistry and Cellular and Molecular Biology.

She earned her Ph.D. from Yale University and completed her postdoctoral at the University of California, Berkeley in Plant and Microbial Biology in 2010.

Key Research: She is doing research on plants intercellular communication between cells, and is interested in investigating how the communication is regulated. She also focuses on how pathogens infect their plant hosts through the communication pathways.



Dr. Carmen Ulloa (1963-)

Dr. Ulloa grew up in Ecuador where she studied botany. She traveled to Denmark, where she earned her PhD at Aarhus University, then joined the research staff at the Missouri Botanical Garden.

Her work mainly focuses on Latin America.

Key Research: Her first project was the first modern documentation of the flora of the Central American republic. She has conducted field work in Ecuador for 35 years, focusing on the plants of the Andes Mountains.

Dr. Ulloa was the lead author on a paper that includes a comprehensive list of all known plants of the Western Hemisphere, which had been separated into different catalogs until recently.



Danny Clarke (1960-)

He is a British horticulturist known as the “Black Gardener.”

He was born in Oxford to immigrant parents from Jamaica

Key Accomplishments: He is a host on the BBC series *The Instant Gardener* and a garden designer.

The show offers quick fixes to problem areas in the garden and gives gardens makeovers.



Daniel Colón-Ramos (1975-)

Colón-Ramos was born and raised in Puerto Rico and went to Harvard University pursuing research projects about medicinal plants among indigenous Central American communities.

He finished his PhD at Duke in cell biology and became a professor at Yale University in 2019.

He also is the founder of the nonprofit organization Ciencia Puerto Rico, which is a network of people interested in science and Puerto Rico.

Key Research: His research focuses on the underlying mechanisms that allow animals to form memories.



Bruce Voeller (1934-1994)

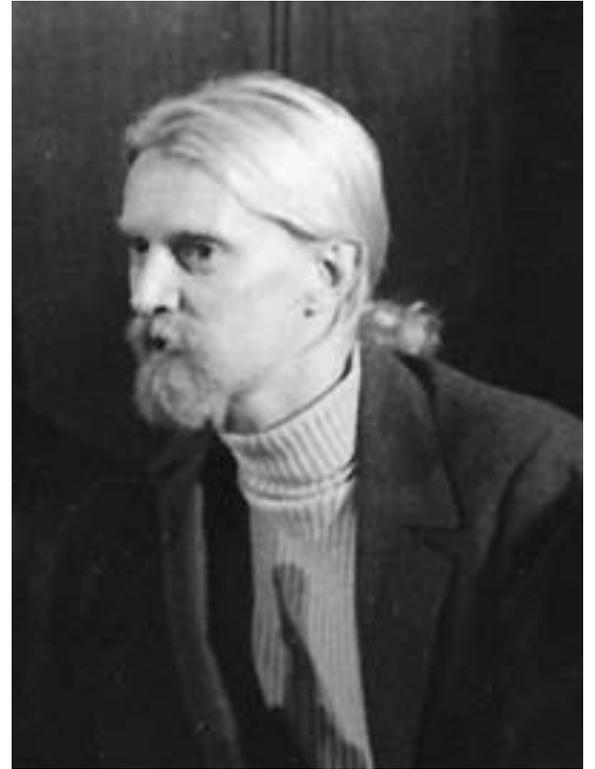
He was a biologist and researcher, who focused on the field of AIDS. He was also a gay rights activist.

He earned a Ph.D. in biology in 1961 from the Rockefeller Institute.

He and some friends founded the National Gay Task Force and initiated the first ever meeting between the White House and more than a dozen gay and lesbian leaders.

Key Research: His field of study was plant physiology and while working at the Rockefeller Institute he published many books on his research.

He was inducted into the National LGBTQ Wall of Honor.



Dr. Monica Carlsen

Dr. Carlsen grew up in Venezuela then moved to St. Louis for graduate school.

She earned her Master of Science, majoring in Plant Systematics, Ecology, and Evolution and Ph.D in Biology from the University of Missouri and works at the Missouri Botanical Garden as an assistant scientist, researcher, and education coordinator.

Key Research: She studies plant species diversity and geographic distribution in tropical regions.

She does research on the rapid radiation of the species rich Neotropical genus *Anthurium*, which means “flamingo.” Dr. Carlsen aims to perform a detailed taxonomic study of the species.



Emmett Chappelle (1925-2019)

He was born in Phoenix, Arizona on a farm.

He received his Bachelor of Science degree in Biochemistry from University of California, Berkeley and his master's in Biochemistry from the University of Washington.

He became a biochemist who made major discoveries in the understanding of bioluminescence, which is the ability of living organisms to produce light.

He was inducted into the National Inventors Hall of Fame for his work on bioluminescence in 2007..

Key Research: He invented a scientific test known as the ATP fluorescent assay, which detects living cells by making them glow, which went on to have global applications in agriculture and medicine.



Percy Lavon Julian (1899-1975)

Born in Montgomery, Alabama, he pioneered the science of producing medicinal chemicals using plants. He graduated from Dupont and earned his Ph.D from the University of Vienna.

Julian synthesized a chemical that is a critical drug for treating glaucoma, an illness that causes blindness

He faced discrimination at Dupont where he was denied a position, but was hired at Glidden Company to direct research into soybean proteins. Later he started his own company and became the first Black chemist inducted into the National Academy of Sciences.

Key Research: He did research into soybean proteins for 18 years and developed many chemical patents related to soybean oil.



Will Allen (1949-)

Allen is a former professional basketball player who grew up in Rockville, Maryland.

He is the founder of a non-profit urban agriculture company in Milwaukee called Growing Power Inc.

He aims for sustainable food production and helps with the growth of communities through the creation of local gardens and food systems.

Key Research: Allen incorporated a system that produced farmed fish and fertilized plants with their waste.



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