

# FACES OF AMERICA

with Henry Louis Gates Jr.



## JOURNEY INTO DNA Answer Key

Function	Structure
<ul style="list-style-type: none"> <li>• Different cells have different functions. Muscle cells contract, neurons (brain cells) send and receive electronic impulses, intestinal cells filter nutrients out of food</li> <li>• Differentiation or specialization of cells</li> <li>• DNA can turn sections of information on and off</li> <li>• Nucleus is the control center of the cell, it regulates cell growth, metabolism, and reproduction</li> <li>• 97% of DNA consists of non-coding or non-functional sequences</li> <li>• Genes determine eye color, height, etc. they also determine how your cells grow and interact with each other</li> <li>• Histones have a positive charge, and DNA has a negative charge, allowing them to stick together</li> </ul>	<ul style="list-style-type: none"> <li>• Red blood cells have no nucleus or nuclear DNA</li> <li>• DNA has 4 bases, A, C, G, T</li> <li>• The cells change to different forms during embryonic development</li> <li>• The nucleus is a sphere-like structure surrounded by a membrane and the genome is contained inside</li> <li>• The genome contains 2 sets of 23 chromosomes</li> <li>• Estimated 70,000 functional genes</li> <li>• The chromosome is most visible during mitosis</li> <li>• Dark bands indicate areas where the structure is dense. Each chromosome has a unique banding pattern, pairs have identical banding</li> <li>• Genes can range in length from 100 bases to several million bases</li> <li>• There are 6 feet of DNA in the nucleus, DNA bends and loops around chromatin coils and resembles a spring.</li> <li>• Chromatin=proteins that help organize the DNA molecule</li> <li>• DNA is wrapped around protein</li> </ul>

	<p>structures called histones.</p> <ul style="list-style-type: none"><li>• Nucleosome=segment of DNA wrapped around histones</li><li>• Double helix structure</li><li>• Rungs of the double helix formed by 4 bases – Adenine, Cytosine, Guanine, Thymine. A <b>always</b> pairs with T, C <b>always</b> pairs with C.</li><li>• the sides of the double helix consist of sugar and phosphate molecules.</li><li>• Nucleotide=sugar + phosphate + base</li><li>• 30+ atoms in 1 nucleotide</li></ul>
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