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	Year	Key Event/ Scientist	Details	Reference to Journal
1	1865	Mendel Experiments on Peas	Gregor Mendel proposed his theories of heredity in 1865. In Mendel's experiments, "Experiments in Plant Hybridization", Mendel bred pea plants for eight years to observe patterns of heredity. His experiments provided the groundwork for understanding the transmission of genetic material along with gene dominance.	Mendel's work was published in 1865 and 1869 in the <i>Transactions of the Brunn Natural History Society</i> .  2013. 1865: Mendel's Peas. Genomegov.
2	1869	DNA Isolated -Frederick Miescher	Frederick Miescher discovered the existence of DNA at age 25. When working at University of Tübingen which was run by Felix Hoppe-Seyler, Miescher collected white blood cell samples and performed procedures to separate the nuclein, phosphorus rich material, from the cell. Miescher later researched other types of cells and found the phosphorus rich material in those cells as well. This discovery helped Miescher to connect the nuclein with	Even though Miescher completed research on nuclein in 1869 his discoveries were not published until 1871. "Ueber die chemische Zusammensetzung der Eiterzellen" ( <i>On the Chemical Composition of Pus Cells</i> ) was published in <i>Medicinischem-chemische Untersuchungen</i>  <b>OT. Avery CMML, Baker JR, Chargaff E, E. Chargaff EV, Dahm R, Davies K, Finger S, Fruton JS, Gehring WJ, Haeckel E, Harris H, AD. Hershey MC, Hoppe-Seyler F, Kiernan JA, Klose A, Kossel A, Kühne W,</b>

			spermatozoa and realized its impact on fertilization.	<p><b>Lagerkvist U, Lister J, Miescher F, M. Noyer-Weidner WS, Olby R, Olby RC, Perutz M, Plósz P, FH. Portugal JSC, Sapp J, Schadewaldt H, O. Schmiedeberg FM, Shepherd GM, Strecker A, Ulshöfer K, JD. Watson FHC, JD. Watson FHCC, Wolf G. 2007.</b></p> <p>Discovering DNA: Friedrich Miescher and the early years of nucleic acid research.</p>
3	1902	Chromosome Theory of Inheritance- Walter Sutton	This was proposed by Sutton and Boveri Theory Stated that chromosomes carry the unit of heredity (genes). The theory was made years before there was any proof until Thomas Hunt Morgan did an experiment with fruit flies that supported the theory.	This was published in papers by Walter Sutton in 1902/1903
4	1909	The Word "Gene"- Wilhelm Johannsen	Danish botanists coined the word gene to describe mendelian units of heredity. He also	Johannsen W., 1909. <i>Elemente der exakten Erblchkeitslehre</i> . Gustav Fischer, Jena.
5	1911	Chromosome Carry Genes- Thomas Hunt Morgan	Thomas Hunt Morgan and his students studied the fruit fly chromosomes. In 1907 Morgan	In 1907, Morgan confirmed Mendelian laws of inheritance and the hypothesis that genes are located on chromosomes by Genome News

			extensively bred the common fruit fly, <i>Drosophila melanogaster</i> . As it turned out, Morgan confirmed Mendelian laws of inheritance and the hypothesis that genes are located on chromosomes.	Network.
6	1953	DNA Double Helix- Crick & Watson	In 1953, Rosalind Franklin obtained images of DNA using X-ray crystallography, an idea first broached by Maurice Wilkins. Franklin's images allowed James Watson and Francis Crick to create their famous two-strand, or double-helix, the twisted-ladder structure of the DNA model. Leading to James Watson and Francis Crick being awarded the Nobel Prize in Physiology or Medicine in 1962 for the discovery of the DNA structure.	In 1953, James Watson and Francis Crick created the double-helix structure of the DNA with the help from Rosalind Franklin and Maurice Wilkins by the Science History Institute.
7	1955	46 Human Chromosome- Joe Hin Tjo	In 1955, Tjio was studying the chromosomes of cancer cells and how abnormalities can contribute to malignant growth and possible deformities. As a collateral discovery, Tjio found that every cell had 46 chromosomes, two	On January 26, 1956, Tjio published his findings in a Scandinavian journal named <i>Hereditas</i> .

			less than the previously thought 48.	
8	1983	First Disease Gene Mapped	In a 1983 experiment looking into DNA polymorphisms, chromosome 4 was found to have a genetic marker linked to Huntington's disease, making it the first diseased gene mapped. It was done by a large group of researchers, and in the future would lead to a better understanding of how individual genes and their potential abnormalities can have massive repercussions.	The group of researchers had their work published in a 1983 issue of <i>Nature</i> , discussing how the gene's marker is directly related to Huntington's disease.
9	1983	PCR Invented	Invented in 1985 by Kary Mullis, Polymerase Chain Reaction is a technique that makes millions of copies of a small sample of DNA. By heating the sample with single nucleotide bases and the thermostable enzyme Taq-polymerase, the DNA unravels into two separate strands. The sample is then cooled, and Taq-polymerase binds the nucleotides to each DNA strand to compliment the sequence. This cycle	In November of 1985, Mullis's manuscript was accepted by <i>Science</i> .

			of heating and cooling is repeated until millions of copies of DNA are produced.	
10	1990	Launch of the Human Genome Project	With more than 2,800 contributors under the leadership of Francis Collins, the Human Genome Project (1 October 1990 - April 2003) unveiled the entire genome of a human being. By identifying and locating each gene, researchers were able to conclude that the human genome is composed of around 20,500 genes. This discovery has led to numerous advances in medicine, especially in identifying and diagnosing diseases.	The entire sequence was published in <i>Nature</i> in April of 2003.

Each event/experiment should list:

- a key name for the event/experiment
- the name(s) of the scientist(s) involved
- the overall conclusion from the event/experiment
- a reference to the journal which published the event/experiment.

<https://www.genome.gov/Pages/Education/GeneticTimeline.pdf>

^^ for reference