50 points - A Brief Time History

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1) The universe was formed about 15 billion years ago.
2) The Sun was formed about 5 billion years ago (has just as much time left to burn).
3) The Earth was formed about 4.6 billion years ago (oldest dated rocks).
4) The first algae existed about 1 billion years ago.
5) From 500 to 65 million years ago, dinosaurs roamed on Earth.
6) The first primates were around as early as 65 million years ago.
7) Homosapiens, the modern species of human beings, from the primate family Hominidae appeared on Earth at about 5 million years ago.
8) Stonehenge: massive stones aligned according to astronomical events (supposedly built by the ancient Druids in England) is about 4000 years old.
9) The Bronze age began about 4000 years ago.
10) The Iron age started about 3000 years ago.
11) The Babylonians (modern day Persia) recorded the first star catalogs and by 800 BC had a good understanding of the planetary locations with respect to the stars in the Zodiac.
12) The mathematician Pythagoras Samos (Grece) [largely known for the Pythagorean theorem $c^2 = a^2 + b^2$] lived around 500 BC and first recognized the shape of the Earth was a sphere.
13) Around 450 BC Democritus, a student of Pythagoras recognized the fuzzy band of light (our Milky Way galaxy) was a numerous number of distant stars.
14) Plato founded his academy around 400 BC. His most famous student was Aristotle (384-322 BC). Aristotle was a predominant philosopher of his age as was a tutor to Alexander the Great (356-323 BC). Alexander the Great was King of Macedonia (336-323) and conqueror of Asia Minor, Syria, Egypt, Babylonia, and Persia. His reign marked the beginning of the Hellenistic Age (Greek way). Aristotle created the dogma that there were four basic elements in everything: earth, air, fire, and water. He viewed the Earth as standing still and was to influence astronomical thinking for 2000 years after.
15) At around 200 BC Eratosthenes (Greek astronomer) calculated the Earth’s diameter which is in close agreement with today’s best known values. The measurement, however, assumed the Earth traveled around the Sun. His measurement was not believed because the Sun centered planetary system was against the dogma.
16) Ptolemy (140 AD), was of the Alexandran school (followed Aristotle’s philosophy) accumulated astronomical knowledge of the ancient world and published the Almagest. This is an Earth centered model of the Solar system which last for over 1300 years.
17) Dark Ages is the period from about 476 AD (the fall of the Roman empire) to about the year 1000 AD. The entire period from the end of classical civilization to the revival of learning in the West; the Middle Ages.
18) Pope Urban II called (1095) for a crusade to restore Asia Minor to Byzantium and to regain the Holy Land from the Turks. Some 10 crusades (to 1291) succeeded only in founding 4 temporary Frankish states in the Levant. The 4th crusade sacked (1204) Constantinople. In Rhineland (1096), England (1290), and France (1306), Jews were massacred or expelled, and wars were launched against Christian heretics (Albigensian crusade in France, 1229). Trade in eastern luxuries expanded, led by the Venetian naval empire.

19) Renaissance (1400-1500 AD), the rich development of Western civilization that marked the transition from the middle ages to modern times.

20) Johann Gutenberg (1400-1468 AD) invented the printing press in 1448. This invention was crucial to the dissemination of scientific knowledge.

21) Christopher Columbus (1451-1506) discovers America on his third voyage. On his first trip he discovered the West Indies (islands between the Caribbean and Atlantic seas) and though he had arrived to India. The reason why he was wrong was that he had miscalculated the distance traveled. He was using an astronomical map based on the Ptolemaic system of the planets and which had the wrong value of the Earth’s diameter.


23) Michelangelo (in full Michelangelo di Lodovico Buonarroti Simoni) (1475-1564) Sculptor, painter, and poet, born in Caprese, Italy.

24) Copernicus (1473-1543) develops the heliocentric model of the solar system. He spent about 20 years to develop it.

25) Based on the Copernican system of planetary motion, Johannes Kepler (1571-1630) discovers his three laws of planetary motion: a) Planets’ orbit are ellipses, b) equal areas in equal times, and c) planets’ periods squared are proportional to the cube of their distance from the Sun.

26) William Shakespeare (1564-1616) writes his famous plays.

27) Galileo Galilei (1564-1642) establishes experimental physics. He defines, distance, speed, acceleration, etc. He was the first to use a telescope as an astronomical device. He discovered sunspots, phases of Venus, four moons of Jupiter, and finds that all bodies are accelerated equally – irrespective of mass. All this gives credence to the Copernican model of the Solar system.

28) Isaac Newton (1642-1727) discovers his three laws of motion. These laws are still in use today. He was able to explain Kepler’s laws in a simplified way.

29) Franklin, Benjamin (1706-1790) discovered electricity in 1751-1753.

30) James Watt invented the steam engine in 1769.

31) Wolfgang Amadeus Mozart (1756-1791) Composer, born in Salzburg, Austria, the son of the violinist and composer Leopold Mozart (1719--1787).

32) Ludwig van Beethoven (1770-1827) Composer, born in Bonn, Germany. Miserably brought up by a father who wanted him to become a profitable infant prodigy, he joined the Elector of Cologne’s orchestra at Bonn. In 1787 he had lessons from Mozart in Vienna, and in 1792 returned to that city for good, apart from a few excursions.

33) Napoléon Bonaparte (1769-1821) French general, consul, and emperor (1804--15), a titanic figure in European history, born in Ajaccio, Corsica. He entered the
military schools at Brienne (1779) and Paris (1784), commanded the artillery at the siege of Toulon (1793), and was promoted brigadier-general.

34) Wright brothers Aviation pioneers: Orville Wright (1871-1948), born in Dayton, Ohio, and Wilbur Wright (1867--1912), born near Millville, Indiana, USA. They were the first to fly in a powered heavier-than-air machine (17 Dec 1903), at Kitty Hawk, NC.

35) Albert Einstein (1879-1955) Physicist; born in Ulm, Germany. He was an undistinguished student in Germany, but flourished at a high school near Zurich, Switzerland. He requested Swiss citizenship in 1901 and took a post with the Swiss patent office (1902--5). By the time he received his Ph.D. (1905), he had achieved world fame for his publications on Brownian movement of molecules, his photoelectric theory that light and other radiation can behave as both waves and particles, and for his revolutionary special theory of relativity, which related matter and energy in the famous equation, $E=mc^2$.

36) Henry Ford (1863-1947) Automobile engineer and manufacturer; born in Greenfield Township, Michigan. While working as an engineer at the Edison Illuminating Company, Ford experimented with internal combustion engines, eventually creating an automobile which he called the Quadricycle.

37) Sir Alexander Fleming (1881-1955) Bacteriologist, born near Darvel, East Ayrshire, SW Scotland, UK. He studied at St Mary's Hospital, London, where he became professor (1919) after serving in the army during World War 1. He was the first to use antityphoid vaccines on human beings, pioneered the use of Salvarsan against syphilis, and discovered the antiseptic powers of lysozyme. In 1928 he discovered penicillin, for which he shared the Nobel Prize for Physiology or Medicine in 1945.

38) Fermi, Enrico (1901-1954) Physicist, born on September 29, 1901 in Rome, Italy. Fermi studied at the University of Pisa from 1918 to 1922, where his precocity led him to often teach his teachers. At the University of Rome, in 1926, he and his colleagues unwittingly split the nuclei of uranium atoms by bombarding them with neutrons, thus producing the first artificial radioactive substances.

39) J. Robert Oppenheimer (1904-1967), physicist, is nicknamed the "Father of the Atomic Bomb."

40) The world's first transistor, was developed in 1945 at AT&T Bell Labs by John Bardeen, William Shockley and Walter Brattain.

41) The first programmable electronic digital computer is completed in 1946. The ENIAC (Electronic Numerical Integrator and Comparator) computer, based on vacuum tubes, goes into service at the University of Pennsylvania.

42) Murphy's Law is discovered in 1949. After a technician installs acceleration sensors backwards on a rocket sled that will carry U. S. Army Major John Stapp, Stapp & Captain Aloysius Murphy announce Murphy's Law: "If anything can go wrong, it will."

43) James Watson & Francis Crick discover DNA (deoxyribonucleic acid) in 1951-1953.


45) At IBM, the Polish-born American mathematician Benoit B. Mandelbrot presents his concept of fractals in 1975-1977.
46) The Apple II computer is introduced. The American inventors Steven Jobs & Stephen Wozniak produce the first personal computer sold in assembled rather than kit form. It is unrivaled until the IBM PC is introduced in 1981.

47) Compact discs (CDs) are introduced in 1982.

48) Tools for computational physics become more powerful in 1985. The American computer designer Seymour Cray introduces the CRAY-2, which performs 10^9 mathematical operations per second. By the 1990s, such supercomputers are simulating highly complex physical phenomena, from the distribution of galaxies in the universe and the behavior of terrestrial storms (above) down to the molecular structure of water.

49) The World-Wide Web is launched in 1989. The British engineer Tim Berners-Lee and colleagues at the Swiss-based international elementary particle laboratory CERN create Hypertext Transfer Protocol (HTTP), a standardized communication mode for computer networks.

50) Dr. Ian Wilmut, at the Roslin Institute in Edinburgh, reported on February of 1997 that they had cloned an adult sheep, their work immediately captivated the public.

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